MARKETING RESEARCH REPORT NO. 850

PRICING SYSTEMS FOR EGGS

ECONOMIC RESEARCH SERVICE
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PREFACE

The present system of pricing eggs has been the subject of continued and intense discussion in the egg industry for more than a decade. In 1966, Congress appropriated special funds to the Economic Research Service, U.S. Department of Agriculture, for a study in depth of how market eggs are priced and what can be done to effect needed improvements. Since that time, a program of research on egg pricing has been carried out by the Economic Research Service in cooperation with the Consumer and Marketing Service and 13 State agricultural experiment stations.

This report discusses the characteristics of the present egg pricing system, the reasons why an egg pricing problem exists, and evaluates various courses of action which might be taken to improve or replace the present system. The findings of this report are based on the many contributing studies which will be published separately by the agencies and State agricultural experiment stations which conducted them. Reports published to date are included under the Selected References. Appendix A contains a list of other reports yet to be published. The total program of research should provide the basic working materials which industry and government can use to evolve an improved system of pricing eggs.

CONTENTS

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SUMMARY

The current system for pricing eggs, like many other pricing systems, has become highly institutionalized and resistant to change. While numerous innovations have occurred in industry structure and practices and both the marketing and production of eggs are far different than they were two decades ago, the egg pricing system has changed very little. Because it has failed to keep pace with the industry, the pricing system has become increasingly controversial and problem laden. Hence, the need exists for a thorough reevaluation of egg pricing methods.

Under the present egg pricing system, base price quotations are determined on every business day for selected wholesale grades and sizes of eggs at several terminal markets. In two markets, New York (the most widely used basing point) and Chicago, cash exchange trading furnishes the main indicator used in determining quotations. Both the number of participants and the volume traded are limited. A quotation based on wholesale trading is issued at Boston. On the west coast, prices reported by the USDA Market News Service to retailers are used as base prices. Premiums and discounts, which are changed infrequently, are widely used to translate quotations into values at other points, levels of trading, and for other grades and sizes of eggs. The use of base price quotations is relatively well understood, but there is less understanding throughout the industry of the conditions under which base price quotations are determined.

Some of the major criticisms of the present egg pricing system are: (1) many quotations are still established at the wholesale level despite the declining role of wholesalers in egg marketing channels; (2) qualities of eggs quoted are often not representative of the kinds now moving in greatest volumes through marketing channels; (3) with the declining role of wholesale trading, the conditions affecting terminal market quotations may be less and less representative of general supply and demand conditions and more representative of temporary conditions in the individual terminal markets; (4) frequent and wide price fluctuations and daily quotations are neither consistent with current supply and demand characteristics nor the needs of major buyers; (5) thinness of exchange trading and declining numbers of wholesalers lead to the predominance of a few buyers and sellers and alleged opportunities for price manipulation; (6) exchange trading increasingly lies outside the mainstream of commercial egg marketing channels, and often is carried out for the purpose of changing prices rather than buying or selling supplies of eggs.

Some of the main suggestions made by industry members and research workers for improving the present egg pricing system include: (1) increasing the volume and number of participants, improving the quality standards, and extending the geographical dimensions of exchange trading; (2) fewer days of exchange trading and less frequent quotations; (3) using technological advances in communication and computers to facilitate trading; (4) more reliance on information other than exchange trading in establishing quotations; and (5) facilitating more informed

price making through the development of new price and volume series, quicker release of this information, and the use of statistical models to provide guideline values. Many of the changes relating to exchange trading are difficult to accomplish within the existing institutional framework. Moreover, since exchange trading is becoming less relevant to commercial trade channels, it is doubtful if many of these changes would permanently improve the pricing system. One reason is that the growth in the number of standing procurement agreements between buyer and seller will tend to restrict further the volume available for open market trading.

The need for additional and improved market information is fundamental to more orderly price determination, irrespective of whether changes involve updating the present price-making mechanism or the substitution of a new approach for the present mechanism. If this information were provided by publicly-sponsored market news programs, it would be generally available to all industry members. More price series are needed at the packing plant and/or delivered to retailer levels to achieve fuller geographical coverage. Volume information needs include: current weekly retail sales and retailer inventories; expanded dealer-packer inventory and movements data; advance orders of dealers and packers for deliveries to retailers; and expected area changes in supplies at country points, including grades and sizes, anticipated hen slaughter, additions of pullets to laying flocks, and the extent of forced molting. More market condition information, particularly of the kind that assesses future impacts, would also be desirable. Every effort should also be made to accelerate the release of information once it is collected. Modern communication and data handling techniques should be fully applied in systems for collecting and disseminating information pertinent to short-run price changes.

The current pricing system for eggs is only one of several types possible under relatively competitive market conditions. Thus, several alternative pricing methods or systems are technically feasible for eggs. These alternatives could still provide direction to longer range problems of resource allocation, as well as the achievement of short-run objectives of facilitating trading and the orderly and timely movement of eggs from producers to ultimate users. Since the present egg pricing system has been in use for many years, and the efforts of the trade have been directed toward trying to improve this system, none of the possible alternatives are yet developed to an operable basis. Thus, considerable planning and implementation would be required. Certainly, any material changes in egg pricing methods should be preceded by extensive discussion and widespread industry agreement. Implementation of some alternatives would, moreover, require administrative or legislative actions. Because the industry is generally familiar with the base price quotation technique, this technique could be readily adapted for use under many improved or new pricing methods or systems.

No pricing method or system can fully moderate wide swings in prices from year to year or from one season to another without effective volume stabilization. Thus, no improved or new egg pricing method or system should be expected, of itself, to raise the level of egg prices to any great extent. Rather, changes in egg pricing methods are likely to be most helpful in minimizing short-run price fluctuations and facilitating more informed pricing decisions and more orderly marketing.

Among the alternative pricing methods or systems evaluated in this report are: computerized buying and selling; using base prices at the delivered-to-retailer level of trading; committee pricing; decentralized pricing; administered pricing; futures-oriented pricing; and pricing under orders or agreements.

Computerized buying and selling could be accomplished through an existing or new organization of traders who would agree to conduct transactions according to prescribed trading rules. This organization would be supported by user charges. Any member firm could offer or bid for eggs at his plant or at a number of other delivery points. Initial costs of establishing such a system would be large, and there might be problems in building up and sustaining sufficient volume. The "Electronic Egg Exchange" might help broaden competition, minimize marketing costs, and increase market knowledge. The results of trading could be used directly, or they could furnish a major indicator for the determination of base price quotations.

Quotations at another level of trading, such as prices paid by retailers, could supplant the wholesale level. Currently, the price determining mechanisms in the Los Angeles and San Francisco markets more nearly approach this method than do those in other major basing points. New series would be required at markets in addition to those now available through market news activities. Such series could be used to develop base price quotations as a starting point for new trading. Alternatively, prices for delivery during the following week could be used to derive values at other levels of trading. Some industry people fear that extensive alignment of base values to the price-to-retailer level might give retailers more direct influence on short-run price levels than they have under the current pricing system.

Committee pricing could best be carried out under specific legislation. A group of designated individuals, supported by a staff to gather and analyze available market information, could suggest prices they consider representative of supply and demand conditions for specified locations, grades and sizes, and time periods. The expertise of industry, State, and Federal participants should be utilized by the pricing committee, with public representatives directly involved in suggesting final price levels. The committee should have representation from various geographical areas and types of firms. A committee pricing experiment conducted by State and Federal researchers suggests that prices determined under this approach would be more stable than under the present pricing system, and could be based on broader supply and demand conditions. A committee could encourage more and better information, and quickly adapt to changing industry structure and practices.

Some decentralization of pricing appears desirable under any modified or new pricing method to reflect regional supply and demand conditions more adequately. But under a fully decentralized pricing system, such as is practiced on live meat animals or in discrete "milksheds," negotiations would presumably take place at widely scattered points. However, the current structure of the egg industry is such that the market is basically national in scope and prices are interrelated over intermediate and longer time periods. Moreover, eggs are more homogeneous than live animals, lots from various areas are readily substitutable, and there are no effective artificial barriers to interregional movement. Hence, fully decentralized pricing of eggs does not appear a likely possibility in the near future.

Administered pricing, operated almost entirely by private industry, might be a distinct possibility if the egg industry becomes more integrated or coordinated than at present. Firm arrangements between buyers and sellers for quantities and qualities, and buying and selling prices somewhat independent of those for "uncommitted supplies," could result. Brands, promotion, advertising, and other forms of nonprice competition could be widely used, as they are on many nonagricultural items. Stricter industry determination and scheduling of quantities produced would be essential. However, administered pricing does not appear imminent, and, hence, will not meet the present need for change.

Futures-oriented pricing would involve derivation of cash market prices by adjusting from values for the nearest futures option. Active futures markets would be required for almost every month of the year. A system of basing cash prices for eggs on the futures market presently has many more disadvantages than advantages. Since only large eggs are currently traded on the futures market, substantial translation problems would exist in deriving prices for other sizes. Moreover, futures trading on eggs is operative only at Chicago. It is true, however, that the aggregate volume of futures trading greatly exceeds cash trading at New York or Chicago, and, over time, futures prices are more stable than cash prices. But while both hedging and speculative activity occur, the latter sometimes induces short-term price movements quite unrelated to conditions in the current cash market. Hence, futures market activity, while a valuable indicator of expected future conditions, has little present potential by itself as an alternative pricing method for cash eggs.

While pricing can be an integral part of voluntary agreements between producers, handlers, and buyers in a particular region, the more generally recognized approach to agreements and orders relates to their operation under State or Federal legislative authority. Under agreements and orders, pricing could be a primary objective or an indirect result. Classified pricing programs, such as those in the milk industry, could be employed. Prices for eggs going into end uses could be set by formula or by periodic determination by a committee or administrator. However, relatively more seasonal and subseasonal changes tend to occur in the production of eggs than of many other commodities. There are also some uncertainties about the degree of price elasticity in markets for shell and processed eggs. These relationships would have considerable bearing on the prospects for success with classified pricing of eggs. Widespread use of classified pricing might become more feasible if volume controls were developed under industry-government programs. Orders could contain distinctive mechanisms for determining short-run prices, or short-run pricing could be left to be determined by other mechanisms if only general price and income goals were sought.

There are no easy solutions to improving the pricing of eggs. Each alternative has both merits and drawbacks. The purpose of this publication is to array these factors for industry consideration.

PRICING SYSTEMS FOR EGGS

by George B. Rogers and Leonard A. Voss[1/]

INTRODUCTION

The present egg pricing system has been increasingly criticized during the past two decades. Most of these criticisms have arisen because methods of determining basic price levels of eggs have not changed in parallel with rapid changes in other industry characteristics. Other criticisms relate to the substantial degree of subjective judgment inherent in present methods and the lack of suitable and timely information for making better short-run pricing decisions.

A central feature of the pricing system in the egg industry is the widespread use of base price quotations. Quotations for selected grades and sizes of eggs are determined on each business day in such major markets as New York, Chicago, Boston, Los Angeles, and San Francisco. New York base price quotations are most widely used over the country, predominating in the Middle Atlantic, Midwestern, and Southern States. Chicago base prices are used mainly in Illinois and adjacent States, overlapping the New York base pricing area. Boston base prices are used throughout most of New England. West coast prices predominate in the Western States, overlapping the New York base pricing area in the Mountain States south to Texas (6, p. 5).[2/]

Methods of determining quotations vary between major markets. In New York, base price quotations are issued by a trade publication devoted to pricing. The reporter observes trading on the New York Mercantile Exchange and evaluates this information along with information within and outside the New York wholesale market district. In Chicago, a private reporter bases quotations almost entirely on trading at the Chicago Mercantile Exchange. In Boston, the private reporter relies solely on information obtained directly from the trade. Prices reported by the USDA Market News Service to retailers in Los Angeles and San Francisco are used by west coast dealers to determine paying prices to producers. An extensive discussion of methods of determining base prices in selected major markets and of the operations of the New York and Chicago Mercantile Exchanges is contained in Appendix B.

Quotations are widely used as points of reference in determining prices paid and received for market eggs at terminal markets and country points, and on sales to retailers and institutional buyers. Premiums,

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1/Rogers and Voss are agricultural economists, Marketing Economics Division, Economic Research Service. Voss is on leave from the University of Missouri.

2/Underscored numbers in parentheses refer to items listed in the Selected References.

discounts, and charges are applied to the base price quotations to derive prices for other qualities of eggs, different quantities bought and sold, other levels of trading, and other geographical locations.

In 1964-65, egg handlers reported that 72 percent of the transactions with their most important customers were tied directly to a specific market quotation (22, p. 53). Many producer prices are also determined under similar arrangements. Vast amounts of eggs are thus sold without daily negotiations on prices. Moreover, the differentials used under standing agreements tend to prevail for long periods of time because of infrequent renegotiation. While differentials do change seasonally somewhat, day-to-day price changes in production areas tend to be closely related to changes in the central markets (32, p. 49).

The egg pricing system in use today developed over a long period of time. It performed satisfactorily when the characteristics of the egg industry were far different than they are today. But with the egg industry changing rapidly, the feeling has spread that the pricing system is becoming increasingly unsatisfactory for today's conditions. Thus, fairly general agreement exists that the egg pricing system needs improvement, but varying points of view exist on what changes to make.

A listing of some of the major criticisms of the present pricing system serves to illustrate the kinds of problems which led to this study. Some major base price quotations fluctuate too often and sometimes without apparent justification on the basis of overall supply-demand changes. Thus, these quotations now appear less representative of conditions across the country than formerly and more reflective of temporary conditions at terminal markets. Base price quotations still center around wholesale trading despite the displacement of wholesalers by assembler-packers as the focal point in egg marketing channels. Many quotations do not reflect the substantial improvements in average egg quality which have been achieved. Where exchange trading exists, it is too thin and too few traders have dominated the market in recent years. Neither price-making institutions nor information programs have changed fast enough. Better market information is needed on prices, volumes, and market conditions to minimize the subjective judgment required, help achieve more stable prices, and facilitate more orderly egg marketing practices.

Congress, after considering the views of industry people and marketing officials, directed that a study be made of the present egg pricing system, possible improvements, and alternative pricing systems. The planning of the research program was carried out by USDA agencies and representatives of State agricultural experiment stations. During the past 2 years, this work has been jointly conducted by these same researchers, using a variety of research methods appropriate to the particular phases studied.

The participating agencies and States and their major areas of emphasis are listed below:

Area of Research	State or Agency
Present system and needed modifications.	Cornell, Illinois, California, New Hampshire, ERS.

Area of Research	State or Agency
Role of uncommitted supplies in price determination.	Maryland.
Futures market and spot-futures price relationships.	Michigan, Illinois.
Wholesale-retail price relationships and role of retailers in price determination.	Rutgers.
Improved market information.	ERS, C&MS, Georgia, Cornell, Ohio, Missouri.
Adequacy of grades, standards, and data series for price determination.	Missouri.
Alternative pricing systems.	Ohio, Cornell, Georgia, North Carolina, California, New Hampshire, Pennsylvania, Missouri, ERS, C&MS.
Computerized systems.	Purdue, Michigan.

Changes in pricing methods should be made only after a thorough evaluation of all possible consequences. In such a complex matter, there are no simple remedies, and changes are likely to require action at many levels in industry and government. Moreover, changes likely will need to be made in a gradual fashion over a considerable period of time.

This report will provide a common basis for initiating general discussions which could lead toward a consensus on means of improving the pricing of eggs. As these discussions proceed, the more detailed reports from the various contributing projects of the total research program will provide additional working materials on which to formulate action on specific issues.3/

3/Some of the major research areas in which detailed reports have yet to be published are listed in Appendix A.

EGG INDUSTRY CHARACTERISTICS AND PRICING PROBLEMS

Changes in the characteristics of the egg industry have placed increasing stresses and strains on methods of determining prices which were established many years ago. While pricing methods have been modified in some respects, changes have not been made as rapidly as changes in industry characteristics have occurred. Thus, pricing methods in many areas still closely resemble those of earlier periods. If pricing methods are to be made more consistent with current industry characteristics, substantial changes or new methods of pricing will be needed.

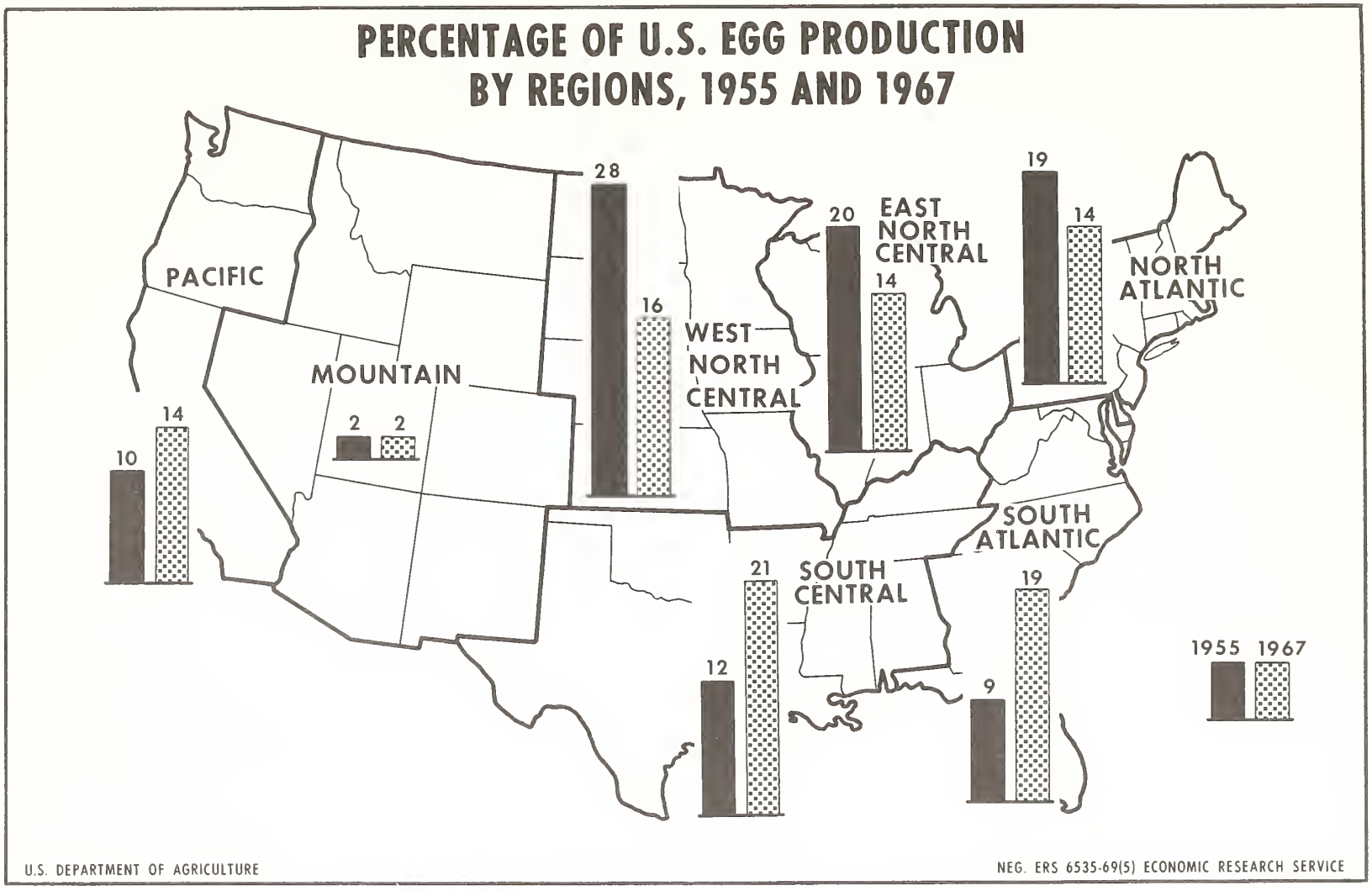
Changes in Production and Marketing

Many far-reaching changes in production and marketing have been underway in the egg industry in the last two decades. Among these are: (1) the emergence of new surplus-producing areas to challenge the Midwest, formerly the main source of supply for deficit areas; (2) the movement of candling and cartoning operations away from major consuming centers and toward country points in producing areas; (3) a substantial improvement in the average quality of eggs sold off farms to packing plants and other buyers; (4) a growth in the volume of eggs moving direct from packing plants to retail warehouses, retail stores, and other final sellers or users, and a drastic reduction in the volume of eggs moving through wholesale distributors in terminal markets; (5) the development of a substantial degree of coordination of producing, input supplying, and marketing functions; (6) the emergence of new producer-oriented organizations concerned with overall marketing policies; and (7) the application of advanced technology in breeding, feeding, housing, disease control, and management which has both leveled out the seasonality of egg production and minimized short-run disruptions of the flow of eggs off farms.

For many decades, the Midwest was the primary source of surplus eggs for deficit areas to the East, South, and West. It was a relatively simple matter to determine prices which would reflect these predominant movements, with minor variations for some seasonal surpluses outside the Midwest. A few terminal markets, primarily in coastal deficit areas, could readily furnish adequate benchmarks for this purpose. However, an expansion of egg production occurred in the South and on the west coast during the 1950's and 1960's (fig. 1). At the same time, midwestern egg production was declining. Thus, the Pacific, South Atlantic, and South Central regions emerged as surplus-producing areas. Hence, eggs now flow in additional and different directions, price determination has become more complex, and the older benchmarks are less satisfactory than under the previous situation.

The movement of candling and cartoning operations toward country points is partly explained by lower operating costs outside heavily populated areas. But it was also made possible by substantial increases in the quality of eggs produced and handled in marketing channels, due to improved methods and more rapid and direct movement.

In earlier years when quality was lower, most country plants sorted and graded many of the eggs into wholesale packs. Nevertheless, in the packs containing a large percentage of Grade A eggs, a substantial


PERCENTAGE OF U.S. EGG PRODUCTION
BY REGIONS, 1955 AND 1967
PACIFIC
10
14
MOUNTAIN
2
2
28
16
WEST
NORTH
CENTRAL
20
14
EAST
NORTH
CENTRAL
19
14
NORTH
ATLANTIC
SOUTH
ATLANTIC
21
12
SOUTH
CENTRAL
19
9
1955 1967
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NEG. ERS 6535-69(5) ECONOMIC RESEARCH SERVICE

Figure 1

proportion of undergrades remained. There were, in addition, substantial quantities of packs containing only undergrades. These various kinds of eggs were moved relatively close to points of consumption before being regraded and packed under consumer standards.

An ERS survey in 1964-66 indicated that eggs delivered by producers to packing plants across the country averaged 92 percent grade A or better, less than 2 percent B's and C's, 4 percent checks and cracks, and only 0.5 percent discards. While some differences exist between regions, average quality in all areas is much higher than a decade or two ago. For example, in the West North Central region, eggs delivered by producers averaged almost 89 percent grade A or better in 1964-66, compared with almost 67 percent in 1948. Now it is relatively easy to pack eggs from supplies at country points which meet U.S. consumer standards at destination. These eggs can either be cartoned at country plants or shipped in cases. Increasingly, cartoning is being done at country plants.

When the average quality of eggs moving through marketing channels was low, base price quotations representative of that quality were justifiable. Now, however, despite some upgrading in the standards for exchange trading, average quality considerably exceeds trading standards. Hence, quotations do not directly represent the kinds of eggs moving through marketing channels in greatest volume.

Wholesale distributors formerly occupied the focal point in egg marketing channels. Prior to the 1960's, about two-thirds of the commercial egg supply moved through wholesale distributors en route to retailers and institutional buyers. About half of the eggs handled by wholesale distributors came from producers and the remainder from assembler-packers. The volume going from assembler-packers to retailers and institutional buyers was only a sixth as large as that supplied by wholesale distributors.

Since 1960, assembler-packers have supplanted wholesale distributors as the focal point in egg marketing channels. The share of the commercial egg supply passing through the hands of wholesale distributors has been cut at least 50 percent. Receipts by these firms from producers and assembler-packers are less than half as large as they were a decade earlier. On the other hand, receipts of assembler-packers from producers have risen substantially. In addition, assembler-packers have increasingly bypassed wholesale distributors and sold more direct to retailers and other buyers. Now, the volume supplied to these outlets by assembler-packers is more than double that furnished by wholesale distributors (fig. 2).

The declining role of wholesale distributors in egg marketing channels has been reflected in the drastic reduction in the number of such firms. Hence, where egg price quotations are based on city wholesaling operations, the available information has decreased sharply. Moreover, exchange trading, which generally takes place primarily to change prices rather than to buy and sell needed supplies, has in recent years equaled only about one-tenth of 1 percent of the egg production in the areas of the country where New York and Chicago are the predominant basing points. And with declining numbers of firms, exchange trading is concentrated in fewer and fewer hands. This enhances the possibilities for price manipulation on the exchanges.

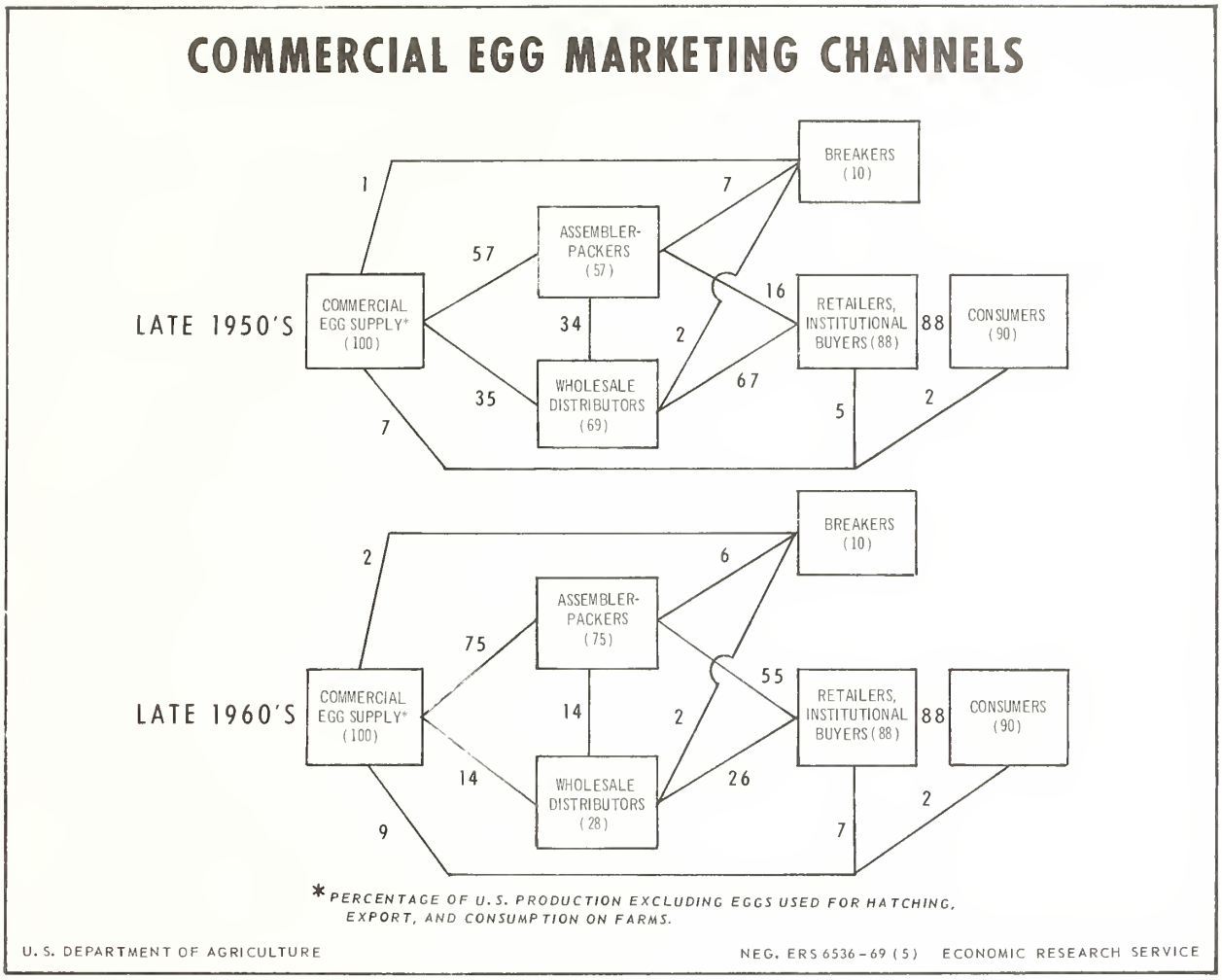
COMMERCIAL EGG MARKETING CHANNELS
LATE 1950'S
COMMERCIAL EGG SUPPLY* (100)
ASSEMBLER-PACKERS (57)
WHOLESALE DISTRIBUTORS (69)
BREAKERS (10)
RETAILERS, INSTITUTIONAL BUYERS (88)
CONSUMERS (90)
1
57
34
35
7
7
16
2
67
5
88
2
LATE 1960'S
COMMERCIAL EGG SUPPLY* (100)
ASSEMBLER-PACKERS (75)
WHOLESALE DISTRIBUTORS (28)
BREAKERS (10)
RETAILERS, INSTITUTIONAL BUYERS (88)
CONSUMERS (90)
2
75
14
14
9
6
55
2
26
7
88
2
*PERCENTAGE OF U.S. PRODUCTION EXCLUDING EGGS USED FOR HATCHING, EXPORT, AND CONSUMPTION ON FARMS.
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Figure 2

Moreover, since wholesale distributors handle fewer eggs, wholesale-based quotations are now more representative of the specific conditions in the particular terminal market than they are at other points or of supply and demand considerations generally. Thus, prices at other points, when directly tied to exchange-based quotations at distant terminal markets, often vary from those which local conditions warrant. Thus, to correct the resulting distortions in prices and movements of eggs, many separate price adjustments (temporary discounts or premiums from standing arrangements) are likely to be required. This makes the use of base price quotations more difficult than it once was.

In parallel with the preceding changes, numerous large owner-integrated operations have emerged, along with firms which coordinate production, input-supplying, and marketing without complete ownership. Many such organizations are fully capable of servicing large accounts without the aid of intermediaries. As producing units have become fewer in number and larger in size, new cooperative-type organizations have been formed. These are oriented toward collecting and disseminating market information, developing group marketing activities, and enhancing farmer bargaining power. While cooperative egg packing plants have been numerous for many years, they were heretofore concerned primarily with operating competitively rather than with the broader group efforts to which the newer organizations are dedicated.

Increasingly, these newer types of organizations, like many other large firms involved in egg marketing, are dealing directly with retailers and other ultimate sellers and users. They could, moreover, operate effectively with far different pricing methods than currently exist--methods which more nearly parallel those used in industries where similar organizations exist.

When egg production was more seasonal than it now is, and production and movements were more vulnerable to weather and other unpredictable events, prices could be expected to vary widely and irregularly. But with modern techniques, seasonal and short-run changes in supply are far less likely. Hence, prices should be more stable seasonally and in shorter time periods. But considerable short-run price fluctuation has continued to exist, particularly in those markets where quotations are closely related to exchange and/or wholesale trading.

Nature of Supply and Demand for Eggs

The production of shell eggs has long been reported at monthly intervals by the USDA's Statistical Reporting Service. The Market News Service has several weekly reports which serve as indicators of short-run changes in production or movements. All of these reports are "after-the-fact," useful only as background data in current, day-to-day pricing. To give some indication of the current level of output, there are data series for calculating the number of hens in production. Usually, average daily egg production increases gradually from January to April, declines slowly through September, and then increases slightly to the end of the year. There is little long-time storage in shell form, since most eggs are now broken or move directly into consumption. Production is less seasonal in nature and the flow off farms is more even and in shorter time periods than formerly.

On the demand side, over 80 percent of total egg production is purchased by the user in shell form for meal preparation. About 80 percent of the shell eggs used in meal preparation are purchased by consumers

through retail outlets and the remainder are procured outside of retail channels by consumers and mass feeding institutions. A study of weekly sales of shell eggs by approximately 7,000 retail stores shows no distinct seasonal pattern. The pattern is erratic with trends in sales of only 1 week's duration accounting for 36 weeks of the year, and eight periods of 2 weeks accounting for the other 16.

The second largest use for shell eggs is by the breaking industry, which utilizes approximately 10 percent of the supply annually. There is a rapid increase in breaking use from January to June, an equally sharp drop to August, and then a moderate upturn with use declining or remaining constant the last 2 months of the year. Use of eggs for hatching increases rapidly from the first of the year to April and decreases rapidly until July, with a relatively constant to slightly declining utilization during the remainder of the year. Over 6 percent of total egg production is used for hatching. Less than 1 percent is exported. About 3 percent of total production is consumed on the farms where the eggs are produced.

The estimated monthly per capita consumption of shell eggs is relatively constant until April, declines gradually to June, increases gradually to November, and remains at this level in December.

Constantly changing egg prices are not consistent with the information available on aggregate supply and demand. This information suggests that average prices might well be changed only weekly or twice weekly, that the changes need not be great in magnitude, and that often there could be successive weeks of similar price levels and not more than two seasonal highs and lows during the year. This is far different from the actual pattern of prices reflected in base price quotations in major markets like New York.

Seasonal and Short-Run Price Changes at New York

The general level of egg prices during various periods of the year is influenced by a combination of long-and short-run considerations. The extent of seasonal increases and decreases is affected by the transition from a lower to higher or higher to lower level of total annual output. This alternatively narrows or widens the spring-to-fall rise in prices or widens or narrows the fall-to-spring seasonal decline in prices. At times, the transition from one level of total annual output to another may disturb the timing of month-to-month price changes which are normally related to season.

Average wholesale prices for large eggs at New York for the period 1961-67 are used to illustrate the volatility of existing seasonal and subseasonal price relationships. New York is used as a point of reference, because wholesale values determined there are widely reflected at other points and levels of sale under the current pricing system, and it is a market where many price changes occur. Wholesale prices of large eggs at New York average lowest in May, and rise to their highest level in September. A decline in average price in October is typically followed by an increase in November, but in December, prices begin their seasonal decline to the spring low.

Wholesale prices at New York fluctuate considerably around the monthly average values, both weekly and daily. Part of the difference is attributable to the direction of seasonal price changes, but holidays

and other short-run factors cause deviations from longer range trends or expected directions. Some short-run deviations are attributable to occasional and nonpredictable events, such as abnormal weather conditions and strikes. Some other changes represent the results of short-run irregularities in supply and demand forces in the New York market itself. Still others seem to occur with some regularity from year to year, despite the lack of visible cause. Many of these latter deviations are difficult to understand and are the source of much irritation and criticism on the part of producers, handlers, retailers, and even consumers.

Some recurring short-run wholesale egg price changes at New York seem to have a psychological or an historical basis. If they are fixed in the minds of long-time traders on the Mercantile Exchange, such a pattern of small group thinking could be translated into price reality through bids and offers.

Thus, there are eight periods during the year when prices usually decline and eight periods when they usually increase. Some of these movements are in the opposite direction from the general direction of monthly average prices. Interspersed between the eight periods when prices usually decrease and the eight periods when prices usually increase are other less predictable periods when prices may move up and down around any line drawn between monthly averages. Periods when price changes may occur are summarized in narrative form in table 1. Figure 3 compares average weekly and average monthly prices for large eggs at wholesale in New York for the period 1961-67.

Some defenders of the present pricing system insist that price gyrations at New York merely represent short-run equilibrium of supply and demand forces. An alternative explanation is that short-run equilibrium is either only approximated or that it may not exist in a meaningful sense. This is consistent with the highly imperfect degree of market knowledge in total and its unequal distribution and with the influence of factors not related to basic supply and demand forces. Thus, other patterns of pricing, probably far less variable in the short run, could result in moving given quantities of supplies into consumption in a more orderly manner. But this would require both improved information and changes from the present pricing mechanism.

Daily Price Fluctuations in Various Markets

In 1967, the New York quotation on the top class of white eggs changed on 132, or 53 percent, of the 248 trading days. The top quotation for large eggs at Chicago changed on 112, or 45 percent, of the 251 trading days. At Boston, the top quotation for the large brown eggs changed on 71, or 28 percent, of the 251 trading days. In San Francisco, prices for large AA white eggs (bottom of range) changed on only 30, or 13 percent, of the 233 trading days. In Los Angeles, prices for large AA white eggs (bottom of range) changed on only 16, or 6 percent, of the 252 trading days.

There was an inverse relationship between the proportion of days when prices changed and the average amount of price change. The average price change was 0.9 cents per dozen at New York, 1.0 cents at Chicago, and 1.6, 2.0, and 2.1 cents at Boston, San Francisco, and Los Angeles, respectively.

Table 1.--Expected price changes in top quality large eggs at wholesale, New York, based on 1961-67 weekly averages

Month	Expected direction of change in average monthly price compared with preceding month	Periods when price decreases usually occur	Periods when price increases usually occur	Other possible price changes
January	Decreasing	Early Jan.		Mid-month up and down. Late Jan. increase.
February	Decreasing			Early Feb. decrease. Mid-Feb. increase. Late Feb. decrease.
March	Decreasing		Mid-Mar.	Early and late Mar. up or down.
April	Decreasing	Late Apr.		Early-to-mid-Apr. up and down.
May	Decreasing	Late May		Early May up and down.
June	Increasing	Late June	Mid-June	Early June up and down.
July	Increasing		Early July, late July.	Mid-July up and down.
August	Increasing	Early Aug.	Mid-to-late Aug.	Mid-to-late Aug. up and down.
September	Increasing		Early-to-late Sept.	Occasional up and down.
October	Decreasing	Late Sept. to early Oct., late Oct.		Some steadying in mid-Oct.
November	Increasing		Early-to-late Nov.	Occasional up and down.
December	Decreasing	Late Nov. to early Dec.	Mid-to-late Dec.	Occasional up and down.

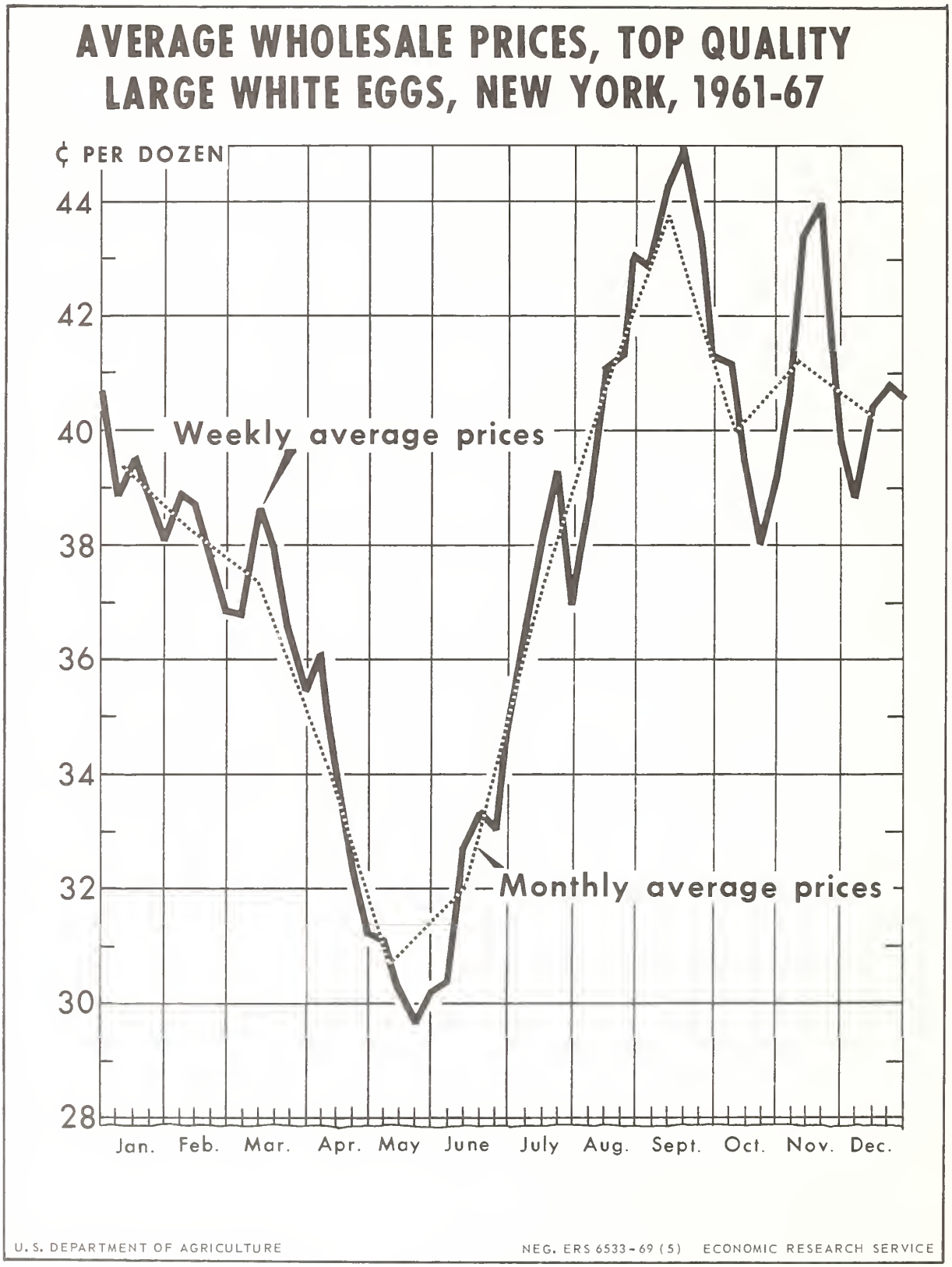
AVERAGE WHOLESALE PRICES, TOP QUALITY LARGE WHITE EGGS, NEW YORK, 1961-67
¢ PER DOZEN
44
42
40
38
36
34
32
30
28
Weekly average prices
Monthly average prices
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
U.S. DEPARTMENT OF AGRICULTURE
NEG. ERS 6533-69 (5) ECONOMIC RESEARCH SERVICE

Figure 3

Complaints about the frequency of price changes are common with respect to New York and Chicago, and somewhat less so at Boston. On the other hand, there are virtually no complaints about base price fluctuations in Los Angeles, and few at San Francisco. Moreover, prices in Los Angeles and San Francisco resulted in adequate performance in clearing the market and keeping proper supply-demand relationships. It is thus questionable if frequent daily price changes can be fully justified as essential to orderly movement of eggs.

Figure 4 shows daily prices for large eggs in selected markets in 1967.

PRICING SYSTEMS AND THEIR CHARACTERISTICS

Pricing is a central element in the production and marketing processes. The signals from the pricing system play a fundamental role in both long-run and short-run decisionmaking at all levels in the industry. In the long run, prices guide resource allocation. In the short run, they should facilitate trading and the orderly and timely movement of goods from producers to ultimate users. A brief review of the various pricing systems functioning in the U.S. economy may serve to broaden the perspective within which the egg pricing system can be examined.

Pricing systems generally may be classified as authoritarian, administered, and "automatic." Examples of the authoritarian type, where some public or quasi-public body determines or approves prices, include public utility and transportation rates, and milk marketing orders. Administered prices are typical of much of modern industry where the firm determines and announces prices for its output. Administered pricing, including such variations as variable price merchandising, also applies widely in retailing products and services. The so-called "automatic," or, as it is alternatively called, "free market" or "competitive" pricing, applies widely to many basic or extractive industries, including many of those in agriculture. Here, prices are determined more frequently, and usually on the basis of country buying, exchanges, auctions, negotiations, etc.

Pricing systems are often closely related to the prevailing competitive structure of the particular industry, as measured by the number and sizes of firms and the degree of differentiation of products or services. Highly concentrated industries are likely to have authoritarian or administered pricing systems. Sometimes pricing systems become authoritarian in type when public powers are used, even though the industry may be less highly concentrated than others. Administered pricing is likely to prevail where the degree of processing or manufacturing is complex or where branding is feasible and nonprice competition important.

In each industry, one level of trading is likely to be of major importance in determining basic prices. In most industries, this is the level at which the product or service reaches a form essentially like that sold to the ultimate consumer or user. In agriculture, the key level may be at the processor, wholesaler, or price-to-retailer levels, and prices to producers are often determined by discounting from such levels. Many retail prices may be determined by markups over cost, "fair trade prices," or "manufacturers' suggested retail prices." On the other hand, many retail prices and margins are adjusted to reflect

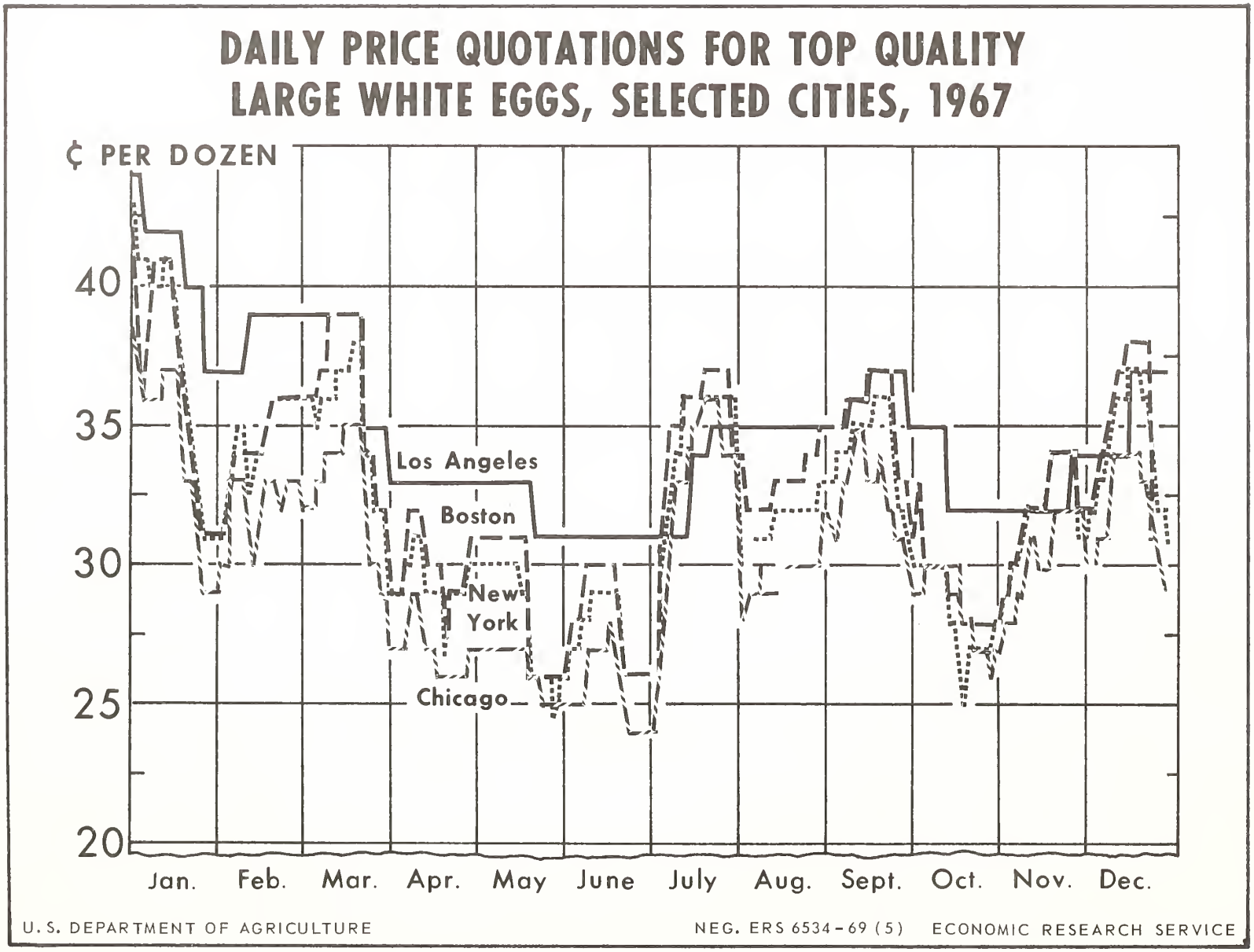
DAILY PRICE QUOTATIONS FOR TOP QUALITY
LARGE WHITE EGGS, SELECTED CITIES, 1967
¢ PER DOZEN
40
35
30
25
20
Los Angeles
Boston
New York
Chicago
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
U. S. DEPARTMENT OF AGRICULTURE
NEG. ERS 6534-69 (5) ECONOMIC RESEARCH SERVICE

Figure 4

local competitive conditions and variable pricing policies, including the use of food items as advertised or unadvertised specials. Thus, there is a key level of trading where the basic price level is usually determined and from which prices are converted by transfer costs, discounts or premiums into values at other levels of trading.

Irrespective of the kind of pricing system which determines basic values, only a few firms may be engaged in basic price making. It is easy to visualize "fewness" as a basic characteristic of many authoritarian or administered pricing systems. In the industrial and service sectors, price making readily becomes a specialized function, because specialization follows with scale and because there is often a vast number of items to be priced. But even where "automatic" pricing systems prevail, many of the large number of potential participants are excluded from basic price making, because they do not possess enough market information or expertise to participate, because being price followers enables them to concentrate on operational, assembling, or distributive functions, or because they are not active in key institutions. Price making always involves a cost, even though it is not separately measured. Holding such costs to a minimum is another reason for limited participation and relegation of the basic price-making role to relatively few hands.

Pricing methods tend to become institutionalized. Members of a particular industry become accustomed to a particular mode of operation. At any time, there may be several workable pricing mechanisms for a particular industry. Moreover, when structural and competitive changes occur rapidly, pricing methods may change far less rapidly. Thus, problems build up and the pricing mechanism may become outmoded. However, it may take a long buildup of stresses before action is taken to adjust methods of pricing to the new structural and competitive characteristics. Corrective action can involve updating the prevailing pricing system or devising an entirely new approach.

The present egg pricing system was developed when a vastly different egg industry structure existed. It is a good example of the fact that "price-making institutions often change less rapidly than industry structure." (15)

REDUCING THE DEGREE OF IMPERFECT KNOWLEDGE IN EGG PRICING

Industry firms maintain informal networks to gather current market intelligence. Data-gathering activities are carried out by associations of which the firms are members. Private market reporting services collect and disseminate information. In addition, the egg industry has available to it from Federal-State market news services and other data-gathering programs a considerable volume of statistical and interpretative information. But the sum total of industry and government efforts does not add up to a level of knowledge conducive to easy and effortless price making. Thus, a substantial degree of subjective judgment is used in price making. In such a situation, there is always an opportunity to seek short-run individual gains, resulting in less orderly overall market performance.

It is, in part, the inadequate level of market knowledge and its unequal distribution among industry members which leads to relegation of the basic price-making role to a few hands. The result is few price

makers and many price followers and easy establishment of habitual reliance on the current pricing mechanism. The few price makers help to perpetuate key institutions, resisting change and the addition of new participants.

Changing conditions in the egg industry have resulted in a widening market information gap. Thus, somewhat irrespective of the kind of pricing system which may evolve in the future, substantial efforts are required to close the market information gap if pricing is to become more orderly and to merit the high measure of confidence it should enjoy.

There are unrealized opportunities to improve the scope and timing of market information pertinent to egg pricing. One of the results of operating under marketing boards or orders is likely to be the development of an efficient and comprehensive information system. This can be observed from the experiences of the British Egg Marketing Board, where, despite problems and dissatisfaction with the program, a vast amount of current information was made available through the Board's direction and legal powers (1). However, the past record of excellent voluntary cooperation with Federal-State market news agencies suggests that substantial progress could be made toward improving the flow of market information on the same basis if agencies would initiate efforts to secure the information.

Closing the market information gap can be facilitated by several kinds of actions: (1) updating and modifying the kinds of information made available; (2) speeding up the release of certain key series; (3) automating data collection and trading; and (4) using the results of predictive models as additional guidelines in price making.

A report published in January 1967 presented detailed descriptions of the various kinds of market news information on eggs available daily to weekly from Federal, State, and private agencies (9). A second report, published in April 1968, provided comparable information on poultry (8). Certain of the series on poultry, such as slaughter reports for light-type hens, are potentially useful indicators for the determination of future egg supplies. Reports such as these can serve to: (1) better acquaint the industry with the kinds of information currently available on prices and for making pricing decisions and (2) help evaluate the need for modifications in, and additions to, various kinds of market news service.

Several new organizations in the egg industry have developed information programs on volumes, movements, and market conditions to support their primary objectives. Private market reporting services have attempted to broaden the basis for their prices and quotations, and to improve their coverage of price, volume, and market conditions. Public agencies have also generated promising new information series. The Economic Research Service worked with the Consumer and Marketing Service in the development of reports on commercial poultry slaughter, commercial egg movement, movement of eggs into retail channels, and Iowa-Minnesota-Wisconsin shipping point egg prices. More recently, the Consumer and Marketing Service developed the weekend egg dealer inventory report and has experimented with a weekly egg disappearance report. All of these efforts, private and public, are commendable, but they have only begun to close the market information gap.

Discussions with industry members and experience with a committee pricing experiment conducted from April 1967 through April 1968 under the egg pricing research program suggested many new kinds of information which might facilitate pricing. These suggestions were mainly related to publicly-sponsored market news information programs. Indeed, developing series in this area would be particularly beneficial, because of their availability to all members of the industry. This would increase total knowledge as well as equalize its distribution. Such dissemination is desirable from the standpoint of more general enlightenment about the reasons for changing prices, if not for widening participation in the actual price-making process. Greater standardization in reporting various markets would also simplify the task of interpreting market information.

Major suggestions for additional price series involve more information at the packing plant and delivered-to-retailer levels. There are several key locations where this information is now lacking. Weekly data on retail selling prices are also needed. In the 1967 inventory of market news reports on eggs, 19 series showed farm prices; nine, assembler buying prices; two assembler selling prices; 15, wholesaler buying prices; 20, wholesaler selling prices; 31, retailer buying prices; and three retailer selling prices.

Decisions about where to place future emphasis in joint planning of Federal, State, and local programs for price information series depend partly on the kind of pricing system which evolves. But, even though it can be argued that prices at a particular level of trading can be translated to other levels of trading by discounts and premiums, series of reported prices at various levels may still be of value for comparison purposes. This may be especially appropriate for series on prices received by producers, even though it might be argued that further expansion in contract production will make farm prices less meaningful or that farm values are readily determined by formula through the discounting process. More emphasis on prices at the packing plant and/or delivered-to-retailer levels is justified on the basis of the declining significance of the wholesale (terminal market) level in marketing channels. Thus, the need is to deemphasize wholesale series and focus on the growing levels of trading. Currently, the only comprehensive information on retail selling prices is the series provided by the Bureau of Labor Statistics. This information, collected 3 days a month and published a month or so later, is useful for cost-of-living purposes, but not in current pricing decisions. Since retail prices often vary in the short run and not always in direct relation to base price quotations, it is possible that reactions could be induced at earlier levels of trading. Hence, weekly information on retail selling prices of principal chains in major markets would help round out current pricing knowledge.

Possible needs for volume information include: current weekly retail sales; retailer inventories; advance orders of packers for deliveries to retailers; expanded dealer-packer inventory and disappearance data; the addition of private storage holdings to those in public warehouses; expected changes in supplies at country points; anticipated hen slaughter; weekly additions of pullets to laying flocks; expected changes in the distribution of egg sizes and qualities; and the current extent of forced molting (recycling of old hens) by areas. More market

condition information, particularly of the kind that assesses future impacts, would also be desirable, even though it may not always be precisely quantifiable.

The current value of market information is maximized when it is made available with a minimum timelag between collection and release. Solving the timelag problem may require more automation and/or adjusted workweeks and publication procedures. If this is not always feasible, it may be necessary to develop indications series based on sampling which could be made available earlier than the full compilation.

The timelag problem exists with some of the quantitative series now being published, such as slaughter data, commercial egg movements, and movements of eggs into retail channels. For example, slaughter data are released on Thursday covering the week ending on Wednesday, 8 days earlier. Data on commercial egg movement and movements into retail channels are released on Thursday for the week ending the previous Friday. Thus, these series tend to be of more historic value than as indicators of the current week's situation. On the other hand, inventory figures are released on Monday covering holdings as of the close of business the previous Saturday or as of Monday morning. If the data from the three reports mentioned above were made available as rapidly as the inventory data, they would be of much greater value for current decisionmaking.

The advantages of modern communication and data handling techniques have not yet been fully applied in systems for collecting and disseminating market information or in actually helping to consummate transactions. There are several ways in which such techniques might be utilized.

It is possible to accumulate and derive many current price and volume series by using computers. Some operational difficulties with this approach are: (1) predetermining weights to assign to individual inputs in situations where the sample of contacts may vary from day to day; (2) including those subjective adjustments which market reporters often are able to make because of their personal knowledge about respondents; and, (3) updating to include changes in information later in the day. Much information is obtained by establishing and maintaining personal contacts. A machine placed in the respondent's office is technically feasible, but would not eliminate the need for direct communication and for interpretation by qualified reporters.

Some private firms and associations in the poultry and egg industries are already offering several types of services to subscribers. Some are designed to accumulate data and to provide progress reports during the day or week. One could, for example, get a summary of sales, bids, or offers made through the system's subscribers up to the time the request is made. Other programs are designed to summarize data which relate to longer range planning. Perhaps similar services are a possibility under publicly-sponsored programs. Certainly, computers also could be used in making short-run price predictions.

It has been suggested that the clearinghouse type of operation could be adapted to computerized operation. Earlier suggestions for clearinghouse systems were primarily regional or subregional in nature and were to be operated largely by telephone. This approach has been

used in some situations. One private market reporter does help place egg buyers and sellers in touch with each other. An informal arrangement was operated among dealers in Pennsylvania. Another on a larger scale uses regular employees of a southern egg marketing cooperative to collect daily information on "longs" and "shorts" among members.

Other market news reporters, private and public, could perform an informal clearinghouse function by directing egg buyers and sellers to one another as they collect other information. But such a function would be limited to those with whom they have regular contacts and might miss many persons who could use such a service. There has also been understandable reluctance on the part of officials of publicly-sponsored market information programs to add such a service where resources are already fully employed in carrying on current functions. Moreover, there has been stated opposition to public activity in this field from some trade interests, especially brokers.

The opportunity exists to extend a clearinghouse type of operation to additional areas. There is much merit and logic to simplified local and regional arrangements to even out shortages and surpluses before seeking more distant arrangements. However, it is now possible through more advanced techniques to broaden the area over which effective operations can be carried out and to telescope the time period required. In any event, resort to localized or regional clearinghouse operations in any form would be far preferable to unloading excess supplies on terminal markets where base price quotations are now determined.

If computers were used in a clearinghouse system for bids and offers, many sellers and buyers throughout the country could deal with one another quickly and effectively. Along with the standardized grades, sizes, specifications, trading units, performance bonding, and growth in trade confidence engendered by this approach, more direct participation in pricing could result without excessive negotiating time. Regional subsystems could constitute the first of a two-stage operation, with the remaining regional excesses or deficits being fed into the national system. The results of such a system could expand market knowledge and could be used as base price quotations or to furnish extensive new data on which to determine them.

Current pricing decisions and much prediction of prices in the immediate future are not being made with the aid of statistical models. During the course of the current egg pricing research program, price predictive models were developed and tested for the New England, Middle Atlantic, Southeastern, Midwestern, and southern California areas. These models involved selected grades and sizes of eggs at certain geographical points and levels of trading. Those involving quarterly, monthly, and/or weekly periods will be discussed in forthcoming publications. Such models can be structured either to predict market prices based on past relationships or to predict more stable and normalized values, depending on the variables included. While the information available for inputs is not wholly satisfactory, such models could serve as aids to participants in the price-making process. Use of models which yield predictions of stable or normalized values would minimize erratic price fluctuations resulting from the current mechanism. Price predictive models should be further refined and then the results might be issued regularly as additional pieces of information for decision-making. This could be done through market news services and/or by State agricultural experiment stations or extension services. But the usefulness of models will be improved if key data series are made available more quickly or new series are developed.

SUGGESTIONS FOR IMPROVING MERCANTILE EXCHANGE TRADING

There have been substantial and continuing efforts to devise and promote changes in present methods for determining base price quotations. Many of these suggestions have focused on the New York and Chicago exchanges because of their central role in the price-making process.

Many of these suggestions are intended to increase the volume of trading on the two mercantile exchanges. Since 1953, a cooperative representing organizations in the Northeast, Midwest, and South has participated in trading on the New York Mercantile Exchange. In the last 2 years, other cooperative-type organizations have participated through licensed firms on the New York and Chicago exchanges. Some producer groups believe this activity should be expanded. Even if financing were available to greatly increase volume, it is doubtful that exchanges as presently constituted would ever become places to buy and sell substantial volumes rather than price indicators.

One suggestion is to raise the grade standards for eggs traded on the mercantile exchanges. Producer-oriented organizations have persistently sought improvements in the quality standards on the New York Mercantile Exchange. Prior to May 15, 1967, standards for the top quality large white class permitted 17 percent of the eggs to be grade C or below, including 3 percent loss. The standards were changed on May 15, 1967, to permit only 12 percent grade C or below, including 3 percent loss. On May 6, 1968, the present standards became effective, further reducing the tolerance of grade C or below to 10 percent, including 3 percent loss (table 30).[4/]

Producers have also asked for the upgrading of egg standards on the Chicago Mercantile Exchange. Prior to the latest change, standards for the top quality large white class were: a minimum of 60 percent grade A, a maximum of 11.7 percent grade C, dirts or checks in combination, and including not more than 3 percent loss. Effective April 15, 1968, the new standards permitted a maximum of only 6 percent grade C or below, including 1 percent loss.

The primary reasons for suggesting higher grade standards on the exchanges were: (1) more firms might be encouraged to secure supplies of cartonable eggs through the mercantile exchange, thereby increasing participation in trading by agencies dealing directly with retailers, or by retailers, (2) base prices could be established on a consumer grade quality of shell eggs, thus facilitating price comparisons and determination of values at other points, levels of trading, and for other grades and sizes, and (3) base values established would be higher.

Trading and prices on the two exchanges were carefully observed at the times when changes in quality standards took place in 1967 and 1968. While these changes were substantial, there was no evidence to indicate any adjustments in prices or quotations on the days that the improved quality standards became effective. Apparently, the traders on the mercantile exchanges did not believe these quality changes sufficiently important to justify price changes.

[4/] Tables 2-30 may be found in Appendix C.

It is not likely that the volume of trading would be increased on the mercantile exchanges if grade standards were made fully comparable in quality to cartonable eggs. At best, the mercantile exchange is a highly irregular source for egg supplies on any given day. More and more eggs are moving direct to retailers and institutions, and procurement through mercantile exchanges is not a part of this direct channel.

Another suggestion is that fewer classes should be traded on the New York Mercantile Exchange. At the present time, trading is in 10 classes, with quotations issued daily. In 1967, 77 percent of the trading was in the top quality large and medium classes and the pullet class. An additional 10 percent of the trading was in the second quality large white class, for which a quotation is no longer issued. Trading in the brown classes was only 4 percent of the total volume. The mixed classes, which include primarily standards and checks, accounted for only 7 percent of the total trading.

If trading were restricted to the major classes of eggs of importance in marketing channels and to New York Mercantile Exchange traders, trading activity could be confined to four white classes. These would be the present top quality white large and medium classes, the pullet class, and an additional class of extra large. The latter is needed, since a substantial volume of extra large eggs does move in marketing channels. Brown eggs are relatively unimportant in the New York area. Hence, traders have not evidenced much interest in establishing exchange prices on brown egg classes. This is also true of the standards and checks.

At Chicago, the number of classes traded was reduced from five to four in April 1968 by the elimination of the large mixed class. The medium mixed class was changed to medium white at that time. From March 19, 1968, to October 14, 1968, all sales were in the large white class. There were numerous bids and offers in the medium class but no sales, only seven bids or offers in the standards, and no activity in the checks. If lack of interest on the part of traders continues on standards and checks, these classes might be eliminated. Consideration might also be given to elimination of the medium class unless there is more activity.

A reduction in the number of classes in which trading is permitted would only slightly reduce trading volume on the mercantile exchanges. With the present state of market intelligence and communication, an informed industry should be able to establish proper differentials for the lesser volume classes based on prices for the top quality large classes.

The size of lots traded at the mercantile exchanges could be increased to 600-case truckload lots. It has been suggested that this might increase trading on the mercantile exchanges, because it is a more likely size lot for firms needing supplies. But since the mercantile exchange is primarily a price registering device, rather than a sales and procurement center for eggs, increasing the size of lots would be a deterrent to trading activity. Larger lots would not only increase the cost of trading and create inconvenience for the traders, but they would also increase the risks involved in trading.

It has been suggested that one way to increase mercantile exchange trading on eggs is to lower the cost of buying exchange memberships. But with total membership restricted, there are only limited possibilities to buy memberships. Thus, the cost of memberships is likely to remain high. If more firms from all segments of the egg industry were exchange members, they would have more influence on trading rules and regulations. But it is doubtful that a few more memberships would, in the long run, greatly increase trading. Many exchange members are not interested in spot egg trading. The other commodities traded, which range from agricultural commodities to metals, are primarily responsible for establishing membership values. The relatively small number who do trade in eggs can trade for nonmembers for a modest brokerage fee.

Free inspection of eggs to be offered on the exchange has been suggested as a means of reducing costs. But, if this were instituted, it would be difficult to limit the free inspection to eggs intended for trading on the exchange. Moreover, if increased participation by large firms is the objective, it is doubtful that the relatively modest cost of inspection is a deterrent to trading. The deterrent is the necessity for inspection rather than the cost.

Limiting trading to 1 or 2 days a week has been suggested, primarily to reduce price fluctuations. Reduction in trading days would reduce the frequency of price fluctuations, and it is doubtful that there would be any increase in the magnitude of weekly average price changes. Now, the price may increase and decrease many times during the week. Thus, with longer periods between trading, prices might average about the same without the day-to-day fluctuations. However, less than daily trading would probably reduce the overall volume of trading, since some of the current trading now occurs in response to very short-run situations.

It has been suggested that exchange rules be modified to permit eggs to be delivered to various points other than the terminal market itself. Under present arrangements, trading could still be conducted through exchange members physically present at the spot call. If eggs were not required to come through the terminal market, this might encourage more trading. However, to conform more closely to commercial transactions, it might be necessary to require trading in truckload lots of 600 cases. This might tend to partly offset any advantages gained from widening the geographical basis of trading.

A possible extension of this idea could utilize closed-circuit television, conference telephone hookups, or telephone calls to a computer center to permit licensed dealers at other points to participate in trading through present exchanges. However, this would require far-reaching changes in present exchange rules, including an expanded membership or some other basis of qualifying for participation in trading. While this approach might tend to expand trading volume and help to stabilize prices, it would not solve other questions, such as quality specifications and trading level. Moreover, if the trend toward firm commitments between suppliers and major buyers continues, a higher volume of exchange trading might not be sustained.

ALTERNATIVE METHODS AND SYSTEMS FOR PRICING EGGS

Since exchange trading lies increasingly outside the mainstream of commercial egg marketing channels, more far-reaching changes may be required to achieve better and more permanent improvements in egg pricing. Hence, there is interest in exploring alternatives, some of which concern distinctly different pricing systems. But there are many problems to be solved and many details to be worked out to make most of the alternatives operable. Many of these alternatives are untried and unfamiliar to an industry which has had experience only with the current mechanisms, and not all are feasible at the present time. Some alternatives would require legislative and administrative action before they could be implemented. Thus, the process of evolving an improved pricing system is likely to be both complicated and of sustained duration, irrespective of the program the industry selects.

Under several alternatives, the essential features of a base price quotation system could still be retained. The simplest change from the present system would involve increased reliance on information other than exchange trading in determining base price quotations. Base price quotations could be determined by private firms, as at present, or by publicly-sponsored market news services, or by a quasi-public group. Base price quotations would not have to be determined daily--once or twice a week would probably be more in accord with the needs of major buyers. Even if issued daily, base price quotations could be delayed until well beyond the present exchange trading closing times in order to use other sources of information.

The base price quotation system, as it has operated in the egg industry, has been geared to the translation of today's quotations into buying and selling prices. There have been some departures from strict adherence to this practice, however. Use of weekly or moving averages has been tried to even out the effects of daily fluctuations. Some settlement prices are determined on the basis of day of arrival and others on the basis of day of shipment. Major retailers usually seek a guarantee on price, particularly when planning advertised specials.

It is possible to have base price quotations or prices determined by other techniques which are, in effect, short-term forward prices. The forward pricing concept was used in price support programs. Here, announced prices presumably guide production adjustment, and purchase or storage activities could be employed to guarantee the prescribed level. Forward pricing also could be employed in the short-term sense. Thus, values for a coming time period could be determined by negotiation or by prediction. For example, prices for eggs to be delivered to buyers at specified destinations could be determined late in a given week for deliveries during the following week. Or, statistical models, using past relationships and currently available data and estimates, could be employed to suggest a price for the following week. Such values could still be base price quotations, either in an absolute sense or as guidelines. If determined by negotiation, premiums or discounts could be applied directly to determine selling or buying prices in the coming time period at other levels of trading. If established by prediction, such values could serve as a starting point for negotiation and for making adjustments to unanticipated developments during the coming time period.

Computerized Buying and Selling

As one phase of the egg pricing research program, research workers at Purdue and Michigan explored the possibility of a network of push-button telephones or typewriters linked to computers. The proposed "Electronic Egg Exchange" (33) would be an organization of traders (either existing or new) who agree to conduct transactions through the system according to prescribed trading rules. It would be supported by user charges.

Any firm could participate in the system by offering or bidding for eggs at his plant or zone and/or at a number of other locations where he was willing to deliver or accept delivery. With only realistic bids or offers entering the system, the possibilities for manipulation would be minimized. Inclusion of the spatial dimension would expedite the trading process and allow local market conditions to be reflected in local prices. Eggs would not be shipped until they were sold and their final destination determined. Much of the clerical work in operating egg markets would be automated. The proposed exchange would permit buyers and sellers to explore many alternative outlets for all or part of their volume--an excessively costly or time-consuming process at present. All trades would be in forward contracts, i.e., agreements to deliver or accept delivery of a particular quantity and grade of eggs in a particular zone during a specified time period. Quantities and prices would be readjusted to consummate agreements.

The Electronic Egg Exchange would require many egg traders to make substantial changes in their way of doing business. Initial costs of setting up the system would be large, and there would be a problem in building up sufficient volume to make the system self-supporting. Hopefully, the exchange would broaden competition, help minimize marketing costs, and increase general market knowledge. The results could be used directly as base price quotations, or furnish a major indicator for their determination.

Base Prices at Levels of Trading Other Than Wholesale

Quotations at levels of trading, such as prices paid producers or prices paid by retailers, could supplant the wholesale level. As is characteristic of many agricultural commodities, prices paid to egg producers are essentially a residual from values established or expected at some other level of trading, less intervening margins for marketing services. Without greatly enhanced producer bargaining power, reinforced by effective volume control, it would be difficult to develop a long-range cost-plus basis of pricing. Moreover, as contract production expands and short-run returns to contract growers are increasingly based on performance standards, farm price information has shown a tendency to dry up, as it has with broilers.

On the other hand, retail stores are by far the most important channel through which eggs reach consumers. Hence, the prices which retailers pay for cartoned eggs might be a more logical trading level for determining basic values. Thus, the level of trading at which basic prices are determined would be shifted away from the wholesale level. If, as some evidence indicates, aggregate retail sales of eggs are

relatively stable, base prices geared principally to this level would change less often than if the basic level also reflected the greater relative variations in requirements from other kinds of outlets. The price-determining mechanisms in the Los Angeles and San Francisco markets more nearly approach this method than do those in other major basing points. But it has been suggested that extensive alignment of base values to the price-to-retailer level might give retailers incentive to push prices down toward minimum costs. Another result might be to give retailers more direct influence on prices than where base prices are determined at another level and by mechanisms in which they do not participate directly.

Currently, prices paid by retailers are collected and released by market news services for some major consuming centers, but not enough to provide a good geographical sample. Moreover, many of these series now tend to reflect premiums over wholesale quotations. If the price-to-retailer level became the primary level involved in determining basic price levels and new series were added, such series could be used to develop a base. Transactions at other trading levels could be related by premiums, discounts, or negotiation to the retailer paying price information. Yesterday's prices would also be the point of reference for today's negotiations.

For example, a given number of retail stores of different ownership, and in a fixed number of cities of over a minimum population, could be contacted each time a quotation is to be issued. City averages could be weighted by populations to calculate regional averages. These could then be weighted by population to derive a national average.

Alternatively, prices at which retail sales are negotiated and determined late in the week, but for delivery the following week, could be translated to other levels. This, in effect, approaches the current pricing system for broilers.

Either of the preceding options could be pursued without additional legislation or any increase in direct governmental participation in price making, and could be done by market news services. Third, under a committee pricing system, suggested prices for the immediate future could be expressed as prices to retailers at given markets for cartoned eggs.

Committee Pricing

Under a committee pricing system, a group of individuals examines available market information and suggests prices which they feel are appropriate for a specified time period. Committee pricing could be carried out by the trade, by informal groups with both industry and public representatives, under Federal-State administrative decisions, or under specific legislation by Congress.

It is probably misleading to pose the present pricing system and committee pricing as complete opposites. Some contend we now have a committee system of sorts, with the exchanges and reporting firms constituting the parts of a private committee system. Under the present pricing systems at New York and Chicago, the Commodity Exchange Authority observes exchange operations and may investigate charges brought against individual firms for alleged malpractices. But if other

approaches to committee pricing were used, public representatives would become more directly involved with suggesting appropriate current price levels.

Publicly-sponsored market news services or State and Federal agencies could collaborate in determining values on a daily, semiweekly, or weekly basis, or even issue suggested values for future time periods. Alternatively, committees with both industry and public members could perform similar tasks. The poultry and egg industries have enjoyed the services for many years of a Poultry Survey Committee, sponsored by the American Feed Manufacturers' Association and the National Turkey Federation. This group meets quarterly and evaluates available information to make predictions of quantities and prices in future time periods. The group is composed of industry advisors, Government observers, and State marketing economists. The latter have final responsibility for predictions. A similar arrangement could operate informally on egg pricing. However, the magnitude of the task of determining short-run values and the economic and political implications suggest that formal implementation would be preferable.

Formal pricing committees could suggest base values for a number of key geographical locations and for major grades and sizes of eggs, using all available sources of market information. This should minimize any undue influence on price levels from a few terminal markets and permit guideline values which could reflect varying supply and demand conditions in major regions. Price relationships between geographical areas do change seasonally and over time. Thus, a single base can often be unrepresentative for other areas. Additional functions of a committee might be to encourage changes in market news gathering, analysis, and reporting, as well as changes in the operations of other data gathering agencies.

Beginning in April 1967 and continuing through April 1968, an experimental committee pricing study was conducted under the research program to gain actual experience on which to evaluate the formal committee pricing approach. Participants included representatives of the Economic Research Service, Consumer and Marketing Service, and the New Hampshire, Pennsylvania, Georgia, North Carolina, Ohio, Missouri, and California agricultural experiment stations. Market news services and industry contacts were utilized to obtain information. Each Friday the participating researchers conferred by telephone. Individuals responsible for certain regions presented preliminary estimates for the following week. These values were then adjusted for national effects to derive final estimates.

Thirty-seven separate egg prices were developed. These included representative grades and sizes for locations from the east coast to the west coast, and the Midwest to the South. Levels of trading included producer, wholesale, and sale-to-retailer prices, plus prices paid by commercial breaking plants. Some of the values were for overall or "mostly" ranges and others for the bottom of the "mostly" range, depending on which were most typically used by the trade.

Several conclusions are evident from an analysis of the results of this experiment. The values estimated were more stable than prices being reported under the present system. Suggested committee prices changed less often and showed fewer extreme short-run fluctuations. This experimental pricing committee, like current traders and reporters,

operated under a severe handicap since information series were not fully satisfactory. Industry representation would probably have helped to fill this gap and improve the resulting values. But in the long run, better information series would be required for effective committee operation. The expertise of State marketing economists was valuable and should be utilized by any official pricing committee.

The experiment suggested that weekly values would often be sufficient, but on some occasions, adjustments during the week might be needed. While committee prices should include several grades and sizes of eggs for several geographical points, they would not need to include all levels of trading included in the experiment. The results of the committee pricing experiment will be published in more detail in a separate report.

No one group--industry, Federal Government, or State marketing economists--has a monopoly on the expertise required for effective committee pricing operations. The present pricing system, which has given rise to widespread dissatisfaction, is almost completely operated by participants in one trading level of the industry. This suggests more public representation might be desirable in the price-making process. On the other hand, industry should have full confidence in a pricing committee and a considerable voice in determining the composition and basic principles of operation of the committee. However, the committee should not be subject to pressures from the trade, and no trade member should be in a position to unduly influence the committee's decisions.

A previous report (37, p. 63) included suggestions on committee organization which were primarily industry-oriented and involved two alternatives. The first alternative was for a single committee to serve the national egg market. This committee would be composed of two persons representing the sources of supply, two representing the demand, and one from the U.S. Department of Agriculture. It was suggested that five to 10 major suppliers and three to five of the largest supermarket chains, as well as large-scale egg processors and wholesalers, should be contacted in each of three regions--Midwest, South, and Northeast--to obtain information. The second suggestion was for three separate regional committees, each consisting of one member from the U.S. Department of Agriculture, five to 10 large-scale egg suppliers, and three to five of the largest egg retailers. Egg processors and wholesalers would be represented where they are important. A central committee of five persons, as indicated above, would be required to coordinate the activities of the three regional committees.

If a regional committee structure is employed, there should be at least four committees in order to include one for the Western region. However, a single committee system appears preferable to a federation of regional committees, although regional representation should be built into the committee structure. Moreover, the committee should have a substantial number of public representatives who are experts on egg marketing and pricing. It should have an adequately staffed central office responsible for assembling from data-collecting agencies and other sources all materials pertinent to committee decisionmaking. The committee should be convened as frequently as necessary to determine base prices. Actual meetings of the committee could either be in person, by telephone, or by closed-circuit television. Committee recommendations should be made public immediately upon their determination.

Final authority for suggesting prices should be vested in qualified State and USDA representatives, with industry representatives contributing expertise and guidance.

It is often alleged that formal committee pricing would cost considerably more than the present system. However, costs of a pricing system should not be measured only in apparent direct costs, but in terms of all costs and benefits to the industry and the public. The basic price-making function now performed primarily by private industry involves a considerable cost. This cost is often ignored, since it is not directly separable from other functions performed by participants. In addition, there is an indeterminate area of indirect costs associated with the present pricing system, and, in particular, with the effects of substantial price variability, uncertainties, and dissatisfactions. Direct costs would be increased under committee pricing, but costs of disseminating information could be lowered. Hence, the total costs of committee pricing might be lower than opponents have alleged.

Formalized committee pricing would require specific legislation by Congress. This should facilitate use of public funds and exempt industry representatives from legal liability under other statutes. Formalized committee pricing would involve a substantial change from present practices. Hence, it would not be as well understood as the present system and probably not immediately as acceptable in total as some other alternatives. However, committee pricing could operate on a broader base, encourage more and better information, and yield prices less subject to fluctuation than the present system. The pricing committee could quickly adapt to changing industry structure and practices and thus achieve continuity without becoming outmoded.

Decentralized Pricing

The alternative of decentralized pricing can be viewed in two dimensions: (1) as merely a tendency for reducing widespread reliance on or fixed relationships to terminal market quotations; or (2) as a distinct pricing system, including possible abandonment of central basing points.

Some decentralization of pricing appears desirable under any pricing system to reflect regional supply and demand conditions more adequately. Numerous historical examples can be cited where exact reflections of terminal market price quotations, such as in New York, were not consistent with conditions in another area. New England, because of the partial differentiation afforded in that region by the brown-egg preference, does not exactly mirror New York prices. Recent experiences in southern California and Arizona with the operation of the Southwestern Egg Producers, Inc., a cooperative, suggest that it is possible, but difficult, to operate a regional two-price system. Prices to producers, relative to those in other areas, have been even more stable than in previous years. Comparisons were made of monthly average prices in selected cities and producing areas, and for selected grades, sizes, and trading levels during the period 1962-67. Some of these relationships have been shifting through time because of changes in marketing channels, relative importance of various producing areas, and other factors. Moreover, relationships vary seasonally. Hence, use of certain

basing points with fixed differentials will not accurately reflect local conditions. This must now be accommodated by making short-run adjustments in discounts and premiums or by some regional decentralization of the price-making process.

Under a fully decentralized pricing system, negotiations or calculations would take place at widely scattered points. One form of decentralized pricing is held to occur on livestock. There is considerable variation in the quality of live animals, and they are processed into many cuts and end products. In another form of decentralized pricing, determinations of blend or classified prices for milk are made by formula and/or group negotiation for discrete "milksheds" or market areas. Despite some area differences, the egg market is basically national in scope and prices are at least loosely interrelated over intermediate and longer time periods. Graded eggs are more uniform in quality than live animals and, hence, lots from various areas are directly substitutable. Moreover, eggs do not end up in as many end products as do live animals. Industry characteristics are not yet consistent with a series of discrete "egg sheds" where output roughly equals requirements. There are, moreover, no effective barriers to interregional movements. Hence, fully decentralized pricing of eggs does not appear to be an imminent possibility. The computerized system of buying and selling, discussed earlier, would offer a feasible means of tying decentralized negotiations into a national market structure.

Some forms of decentralized pricing would not require legislation or change the relative role of government in the price-making process. The system of pricing live animals, regional arrangements of the SWEP type, or a proliferation of base points based on reported prices apparently would not require changes. On the other hand, decentralized pricing carried out under formalized committee pricing or order legislation would involve more public participation.

Administered Pricing

Some contend that if the trend toward integration and coordination continues, administered pricing would be a distinct possibility. Brands, promotion, and advertising might be used to achieve product differentiation. Sales policies could thus become more heavily involved with nonprice competition. Retail organizations could integrate downward to develop and operate their own producing and packing facilities. Or they could conclude firm arrangements with suppliers for quantities and qualities, with both their selling and buying prices for table eggs somewhat independent of those for "uncommitted supplies." Alternatively, with large feed companies or national brand firms as the primary integrators, pricing could move toward a cost-plus or contract basis at the farm level and be administratively determined at other levels, such as the price to the retailer. Administered pricing would probably increase in importance to the extent that eggs are sold as further-processed products to consumers. Such pricing would likely result in somewhat more stable selling and paying prices for eggs than under the present system. Separate seasonal patterns of prices for selling cartoned eggs and paying producers might also occur since the two sets of prices would not necessarily follow each other as closely as they do now.

Administered pricing, as discussed herein, is a system which would be operated almost completely by private industry. The role of government on a regular basis would be to gather and analyze data and to provide indirect surveillance and action under any present or future statutes relating to overall competition, market power, fair practices, and quality. Administered pricing, if it followed the typical non-agricultural situation, probably would be accompanied by stricter industry determination and scheduling of quantities produced. But some diversion of quantities unsold in the table egg market, such as to breakers and storage, might still be necessary at times. If the marketing structure changed appropriately, administered pricing might gradually become characteristic. It will not meet the present need for change, however.

Futures-Oriented Pricing

At the present time, futures trading on eggs is operative only on the Chicago Mercantile Exchange. In 1966, the old contract based on storage eggs was replaced by the fresh egg contract. This removed some of the previous objection to using prices based on low quality eggs and the declining industry practice of storing eggs in surplus months for later sale. Thus, a reexamination was made of using futures prices as a basis for determining current values.

The fluctuation of daily futures prices is limited to a range of 2 cents per dozen above or below the previous day. This might have some dampening effect on the magnitude of daily fluctuations in cash egg prices, since no such limitations currently exist on spot market exchanges. However, the allowable unit of price change of 0.05 cents per dozen on futures prices is smaller than that used on spot markets and, thus, is not suitable to current cash egg pricing practices. More individuals are active in the futures market than in the spot call and the aggregate volume of trading greatly exceeds cash trading at New York or Chicago. Statistical evidence does suggest that futures prices are more stable than cash prices.

Derivation of cash market prices from futures prices presumably would be accomplished by adjusting prices for the nearest futures option back to the current period. Other translations would be required for grade, quantity, location, and trading level. All of these translation problems would be difficult. Active futures markets would be required for almost every month of the year. Under such an approach, the Commodity Exchange Authority would naturally extend its surveillance to new options. But, new public interests would become attached to futures trading if futures prices were to become the determinant of cash prices.

A system of basing cash prices for wholesale eggs on the futures market has far more disadvantages than advantages. Since only large eggs are traded on the futures market, substantial translation problems would arise in deriving prices for other sizes. Although futures trading now tends to reflect conditions in the Midwest and not necessarily those in other regions, this shortcoming could be corrected. While both hedging and speculative activity occur, the latter may induce short-term movements quite unrelated to conditions in the current cash market.

Futures market activity is a valuable indicator of expected conditions and a useful adjunct to any pricing system. As an alternative pricing system, however, it has little present potential by itself.

Pricing Under Orders or Agreements

Voluntary agreements can be concluded between individual producers, handlers, and major buyers in a particular area. Many eggs are now sold under such informal agreements where firms continue to trade all or a portion of their volume with each other until one party or the other terminates the arrangement. Often no fixed quantities are specified from week to week, and prices are usually tied by formula to a specified market quotation. In other situations, buyers and sellers commit themselves for a specific time period. Occasionally, such arrangements include pricing bases which are not related to a specific market quotation. There may also be an annual average price specified, or prices may be negotiated for given time periods.

In other situations, such as producers banding together for bargaining purposes, group agreements between participants can result which have more far-reaching effects. If price negotiations are an integral part of such arrangements, they may well establish market quotations in the geographical area involved, rather than follow or contribute piecemeal to them. The SWEP operation during the past few years typifies this type of development. Egg producers, who were supplying mainly the Los Angeles market, became members of the cooperative and signed contracts making the organization their exclusive bargaining agent. SWEP, in turn, signed exclusive contracts with dealers, most of whom were in the Los Angeles area. These dealers agreed to buy from members. The cooperative board, after considering market conditions, established a weekly price for dealers to use in paying producers. SWEP, with the dealers' cooperation, assumed the responsibility for disposing of eggs not sold in the southern California, Arizona, and Utah areas. Producers' returns were based on a pool price covering both sales of local shell eggs and the disposal of surpluses.

Such an approach could be employed with or without volume controls, though eventually these might be required. Another problem is that the bulk of local production would have to be included. Such a plan seems initially to work well for a single area or a few areas, but selling into areas which do not have similar plans can often be disruptive to the industry in these areas. To the area with this program, the aggregate demand for table eggs in other markets is relatively more elastic than its own market. If the quantities moved into other areas are sizeable, prices there may be reduced or normal patterns of marketing disrupted. This could lead to widespread complaints or countering actions in affected areas. It is possible, of course, for similar programs to be developed in other areas. Eventually, some overall program to coordinate programs in the individual regions might evolve.

The more generally recognized approach to agreements (and orders) relates to their operation under State or Federal legislative authority. A recent Cornell study evaluates methods used under marketing order legislation (11). Programs to regulate output, marketing, and/or pricing of eggs could be developed under Federal authorization if the Agricultural Marketing Agreements Act of 1937 were amended to include eggs among the eligible commodities or if new and separate legislation were

enacted. If such possibilities materialized, new pricing systems could be either a primary objective or an indirect result.

A program might include a classified pricing program, such as that used in the milk industry. Prices are set by formula or other methods for milk used in designated classifications. Producers are paid a price which reflects the proportions going into these end uses. The general idea is to set prices higher in the more inelastic retail market by diverting part of the output to other uses, thus resulting in a higher total revenue to producers.

If this approach were used on eggs, a Class I price could be set on eggs for table use, and Class II and even Class III prices for other types of outlets. Class II eggs could involve all other uses, such as breaking, export, the institutional market, or even table egg outlets outside the area covered by the program. A further division could be made into Class II and Class III, depending on the elasticities of demand in other uses or even some more arbitrary standards of value for secondary outlets.

While there is evidence that in the short run the demand for shell eggs for breaking is relatively elastic, the demand for eggs in liquid, frozen, or dried form is, in the aggregate, more inelastic over time than in the table egg markets. The manufacturers of products using broken-out eggs are not likely to alter formulas to increase the proportion if eggs are already a high cost ingredient. The direct consumer demand for egg products as such is negligible. Egg-breaking operations in any given year, particularly as related to the frozen and dried products, are materially affected by inventory volumes, as the products have excellent storability. Thus, as in 1968, breaking activity may be curtailed despite low egg prices. On the other hand, breaking activity may increase despite high prices, as in the fall of 1966. These considerations place grave doubts on the feasibility of extensive use of outlets for broken-out eggs as a secondary and balancing market for eggs not allocated to table egg outlets.

Of the outlets for table eggs, sales through large retailers may be among the most stable throughout the year. There are, however, some bulges and declines in consumption associated with a few major holidays. Domestic military purchases may also be relatively stable with constant levels of personnel. Overseas military shipments are, of course, related to personnel levels, but in the short run are affected by shipping schedules and space availability. Requirements for restaurants, hotels, public institutions, transportation companies, and small retailers may be relatively steady over time, but purchases may be made periodically or even irregularly. Requirements of resort outlets are likely to vary seasonally. Some geographical variations in total requirements occur during vacation periods. The export trade in shell eggs appears irregular and somewhat erratic, but its quantitative effects are minimized since shipments are small in total and for many destinations geared primarily to smaller sizes.

Prices determined under classified pricing systems tend to change infrequently. To use this approach on eggs for short-run purposes might necessitate more frequent recalculation than is required on other commodities, such as milk. Not only are the characteristics different for egg outlets, but egg production varies more seasonally, subseasonally, and from year to year. There are also numerous external effects which

are uncertain in timing and magnitude. Thus, classified pricing of eggs might pose somewhat different technical and short-run problems than does milk.

The question of the general level of egg prices has long been confused with the mechanism for determining prices. Improved pricing systems are possible with or without efforts to stabilize output, although admittedly the strain on any pricing system would be lessened with relatively stable output. Thus, widespread use of classified pricing of eggs might become more feasible if volume controls were developed under industry-government programs.

With operative programs to stabilize output, orders could contain distinctive pricing mechanisms to help facilitate general goals of maintaining unit prices or income levels. On the other hand, the program could relate entirely to volume stabilization, and the determination of short-run prices could be left entirely to the play of free market forces if price (or returns) is only a longer range objective. If stabilization programs were concerned with attaining short-run price goals, some form of committee pricing or classified pricing could be used. If programs were regional in nature, some decentralization of price determination could result in the short run, though intermediate-and long-range relationships to other areas would have to be considered.

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APPENDIX A

SUBJECT MATTER AREAS TO BE COVERED IN FUTURE REPORTS

The major reports published to date under the egg pricing research program may be found in the Selected References. Following is a listing of the subject matter area of future major research reports and the publishing agency or station:

Station or Agency	Subject Matter Areas
Cornell	Classified and formula pricing of eggs; short- and long-run factors affecting egg prices.
Pennsylvania	Short-run price predictive models for the Middle Atlantic region.
New Hampshire	The New England egg pricing system and methodsfor its improvement; short-run price predictive models for the New England region.
Georgia	Short-run price predictive models for the Southeast.
Ohio	Committee pricing of eggs (in cooperation with ERS, USDA, and Pennsylvania). Inter-relationships between the markets for shell and breaking eggs.
Maryland	Uncommitted egg supplies and their impact on egg price determination.
Rutgers	Wholesale-retail egg price relationships.
Michigan and Illinois	Cash-futures price relationships for eggs and futures market operations.
Missouri	State egg law differences in quality standards and weight classes in relation to egg pricing; changes in consumer demand for eggs at the retail store level; role of market news in egg pricing.

Station or Agency	Subject Matter Areas
California	A case study of the egg marketing system in Southern California.
ERS, USDA	Historical relationships between egg prices in various markets.

APPENDIX B

CHARACTERISTICS OF PRESENT BASE PRICING METHODS

New York Egg Price Quotations

The most widely used egg price quotations are those originating at New York. The Urner-Barry Company is the private firm which reports New York wholesale prices for many agricultural commodities, including eggs. The company has published daily price quotations, a weekly statistical market review, and other publications since 1858. Market reporting services are sold via subscription to the publications and through other communication facilities such as telephone and wire services.

Prior to the opening of the market at the Mercantile Exchange, the company representative reporting on eggscontacts a number of wholesalers in the Manhattan area. In these personal contacts, he gathers little information on prices, because nearly all prices of wholesale grades of eggs are determined on the basis of the quotations of the previous day or on the quotations to be announced a few hours later. He does learn how the dealers feel about the current market situation and whether eggs are moving rapidly or slowly into distributive channels in relation to the actual or expected receipts. Contacts are also made in the morning or the previous afternoon with major egg buyers in the New York area, but outside the Manhattan market. Calls and contacts are made with firms in the major production areas, particularly those supplying eggs to the New York metropolitan area (13, p. 13). The Urner-Barry reporter is on the trading floor of the New York Mercantile Exchange during the 15-minute spot call each day. After observing all trading activity, he announces his egg price quotations a few minutes after the close of trading. These are the new base egg quotations until the next spot call on the exchange. These quotations are announced by posting them on a blackboard on the trading floor of the exchange. This blackboard is clearly labeled as being the property of the Urner-Barry Company.

Technically, the quotations are a personal judgment of conditions at the moment of the release. Actually, the quotations for major classes of eggs appear to be heavily influenced by trading on the exchange. The reporter is free to ignore unfilled bids and offers and other information he considers irrelevant or misleading, but only rarely is the closing sale price of an active spot call completely ignored. According to one of the members of the exchange, quotations are based about 90 percent on exchange trading. A study indicates

simple correlation coefficients for the three major classes of eggs (extra fancy heavyweight whites, fancy medium whites, pullet whites) of +.993 to +.998 during the period 1961-66 (4, p. 15).

A quotation is issued for each of the trading classes of eggs each day. On most days, there is no activity in most of the classes of eggs at the New York Mercantile Exchange. Thus, in 1967, there were 543 changes (42 percent of total changes) in quotations for the 13 classes without sales, bids, or offers on the day the change was made (table 12). This is an average of 42 such changes for each class. Changes ranged from five to 79 in a class. The quotations are apparently adjusted on classes with no activity to retain an acceptable relationship between qualitites and sizes.

Chicago Egg Price Quotations

The Chicago egg price quotations issued Monday through Friday each week are accepted and used by egg handlers in Chicago and elsewhere, especially in adjacent areas of the Midwest. The Chicago base price quotations are established at the close of the Chicago Mercantile Exchange daily spot call. A private market reporter, who is usually not present at the time of the spot call, receives the phoned report of trading as recorded on the spot call board. This is his sole source of information. The reporter usually decides at once what the new quotations will be. These are posted on a blackboard above the trading floor where they are readily visible to all traders on the floor. A study indicates the quotations for large white eggs are based almost 100 percent on exchange trading. There were only 5 days during 1966 when there appeared to be exceptions or departures from the exchange trading on this class of eggs.

Changes from the previous day's quotations are made not only on the basis of sales on the spot call, but also on offers below the previous quotations or on bids above earlier quotations. Quotations are adjusted for classes of eggs on which there are no sales, offers, or bids to retain an acceptable relationship between qualities and sizes. No trading activity was involved in 30 percent of the changes in quotations in 1967.

The private market reporter is not an exchange employee or member, but his quotations benefit exchange members. In addition to being posted at the exchange, the quotations are made available to the public through various media. The same private market reporter has been establishing the Chicago egg quotations for over 20 years. He spends a small part of his time quoting the egg market. His principal occupation is in poultry processing and distribution in the city of Chicago (25, p. 7).

Boston Egg Price Quotations

The quotations which are the basis for most sales in the New England area are compiled by a reporter for the Boston Herald Traveler. The reporter formerly operated from an office in the Faneuil Hall market area, but his office is now located elsewhere. Normally from about 10:00 a.m. to 11:30 a.m., Monday through

Friday, he receives reports of bids, offers, and sales of first receivers in wholesale lots in the Boston market area. The same reporter has been doing the work for more than 25 years.

The activities of the reporter are controlled to a degree by the consent decree of December 1949. This decree settled an antitrust case filed against the Boston Fruit and Produce Exchange and most of the major handlers who were members of the Exchange, charging them with collusion in fixing prices. The decree sets out in some detail the rules under which the reporter and the handlers are to operate (17, p. 13). It is the responsibility of the traders to report sales, offers, and bids to the reporter. During the trading period, the reporter aids trading by directing traders desiring to buy to traders desiring to sell and vice versa. Toward the end of the morning period, trading usually stabilizes around price levels that will (1) clear the supply present in the New England area, or (2) will entice needed supplies from other areas outside New England. (Movement of eggs out of New England is small and infrequent.) The resulting prices are then issued as the Boston quotations. They are published in the newspapers and released to wire services and private market reporters over a wide area. Quotations are issued for jumbo, extra large, large, medium, and pullet sizes for both brown and white eggs. The quotations for brown eggs are widely recognized as the primary quotations, since New England is the major brown egg preference area in the nation.

Egg Pricing in Los Angeles

A guiding factor in West Coast egg pricing is the price of eggs to dealers in the Los Angeles market area as reported by the USDA Market News Service. Historically, there have never been price quotations in Los Angeles or elsewhere on the West Coast of the type available in the New York, Chicago, and Boston areas.

Since early 1966, a major factor in egg pricing in the Los Angeles area has been the weekly prices established by Southwestern Egg Producers, Inc., (SWEP), a cooperative. The Chicago and New York price quotations are closely watched by SWEP and may be considered in establishing weekly prices. The remainder of the west coast is strongly influenced by prices in the Los Angeles area.

Origin of Commodity Exchanges

Until the 1850's, agriculture was characterized by small units. Transportation, communication, and other marketing problems were largely local in nature. In the last half of the century, many changes took place which led to the development of a nationwide, commercial marketing system. Cities grew rapidly, western lands were brought into production, railroad mileage expanded quickly, and communications improved. These developments facilitated the long-distance flow of commodities to food deficit areas.

Trading progressed from casual street corner transactions to formal clubs organized to provide a common meetingplace for traders. Rules and regulations

were promulgated, administrative procedures created, and arrangements made for the publication of current prices and the distribution of other kinds of market information. It was a logical next step for commodity exchanges to emerge and provide organized trading. Commodity exchanges are nonprofit associations of persons acting as principals or agents in the transfer of ownership. Their chief function is to provide the necessary facilities to accommodate their members, patrons, and other interested parties. Commodity exchanges have stood the test of time in efficiently transferring the ownership of principal agricultural commodities. Futures markets are the major part of most exchange operations. The "cash" or "spot" markets are for sale and delivery on the spot (i.e., within a few hours) of eggs available and accepted according to the rules of the exchange.

To function adequately, a good cash market on a commodity exchange should: (1) provide continuous market trading for those who wish to buy or sell and yield a continuous flow of prices; (2) involve large numbers of buyers and sellers and large egg volume to provide price stability through the interaction of many demand and supply ideas; (3) enable buyers and sellers to obtain or dispose of a commodity at any time during business hours and at a price varying only slightly from the last previous price or quotation--the continuous market for commodity liquidity; (4) have standards to assure that the quality is the same as that moving in quantity in the normal channels of trade--to assure broad participation; (5) provide for the compilation and immediate release of price information from trading, since the spot markets dominate the pricing of many farm products; and (6) acquire and disseminate adequate economic and commercial information to members.

Commodity Exchange Authority Regulation of Commodity Exchanges 5/

The Commodity Exchange Authority is an agency of the United States Department of Agriculture, acting for the Secretary of Agriculture in the administration and enforcement of the Commodity Exchange Act. It is a violation of that act to manipulate or attempt to manipulate prices on the spot egg markets, as well as in the futures markets. If violations are established, the Secretary may move against the individual violators administratively or may seek criminal action against them through the Department of Justice. In addition, if it is found that a contract market, such as the two mercantile exchanges, has not provided for the prevention of manipulation of prices, action may be taken under the act to revoke the exchange's designation as a futures contract market. However, such a revocation would not affect the right of the exchange to continue its spot egg market.

The Commodity Exchange Authority recently concluded an investigation covering trading on the spot egg markets conducted on the New York and Chicago Mercantile Exchanges. The investigation revealed that the basic problem with both markets is the Nation's unsatisfactory egg pricing system. It found that the system of exchange trading in spot eggs is obsolete; that trading on the exchanges no longer is conducted to obtain supplies of eggs but rather is engaged in primarily to influence prices. CEA found that currently there are

5/ This section was contributed by the Commodity Exchange Authority, USDA.

too few trades and too few traders on the exchanges to provide an adequate price base. CEA concluded from its investigation that because of the inherent deficiencies in the egg pricing system, action under the Commodity Exchange Act is not the answer to the problem. Since the whole system of egg pricing is based upon an outmoded institution, action against individuals for manipulation would accomplish little, and action against the exchanges would be futile. It is the opinion of CEA that remedial legislation is urgently needed in this area.

Relation of Egg Price Quotations to Exchange Activity

The New York and Chicago Mercantile Exchanges do not officially quote prices. While the establishment and dissemination of quotations is a separate process from the trading on the mercantile exchanges, the spot calls furnish major indicators for establishing and quoting values for eggs in New York and Chicago. Technically, a quotation is a published judgment of the market value of each class of eggs at the time the quotation is issued.

Activity on the spot calls is reported by Federal-State market news services. It is also observed and transmitted by private market reporters. The New York and Chicago Mercantile Exchanges provide mechanisms through which trading prices are publicly registered and adjusted. This enables independent market reporters in these cities to obtain the primary information for determining egg price quotations. In the trade, these quotations have become widely accepted as base prices.

New York Mercantile Exchange

By far the most important commodity exchange in the trading of cash eggs is the New York Mercantile Exchange. The exchange was organized in 1872 under a different name to provide facilities for public trading in several agricultural commodities, including eggs, and some nonagricultural products. Membership in the exchange is limited to 500 and is open to any person or firm with good business standing. To obtain a seat or membership on the exchange it is necessary to buy the seat of a current member and to secure the approval of the exchange. In July 1968, an exchange membership sold for $35,000. The exchange is governed by an elected president and executive committee.

Trading in eggs is only on the spot call, and eggs bought are due at the buyer's place of business by 2:00 p.m. of the same day for cash payment. Thirteen classifications or grades of eggs are traded on the exchange. These grades or classes differ from, but are defined in terms of, U.S. grades and standards for shell eggs.

The minimum lot which may be offered or sold on the exchange is 50 cases for all classes, except peewees and checks, for which the minimum is 25 cases.

Trading in eggs open at 10:30 a.m., for 15 minutes, Monday through Friday. Trading is conducted exclusively by members of the exchange, either for their private accounts or as brokers for nonmembers. This trading is carried on publicly by voice before a set of blackboards on which exchange employees record

offers, bids, and sales. Elaborate rules describe the conditions under which trading is done, including the definitions of weight and quality classification, delivery procedures, methods of payment, and related factors. The end of the trading period is signaled by a bell operated by an official of the exchange. Under normal conditions this bell is rung promptly at 10:45. However, if there is continuous trading activity at this time, the ringing of the bell is delayed until there is a very brief lull (4, p. 5). Most of the trading is done in the last 5 minutes and even the last minute of the 15-minute trading period. Some of the active traders normally do not arrive until after 10:30.

There is no visitors' gallery at the New York Mercantile Exchange, but limited numbers of visitors may be on the trading floor as guests of members. The member normally signs for the guest before he enters the trading floor.

The New York Mercantile Exchange is located in a turn-of-the-century building on Manhattan's lower west side. Wholesale dealers in eggs and such items as butter and cheese, vegetables and fruit are located in this area. This was the wholesale food district for the New York area for many years.

Chicago Mercantile Exchange

The Chicago Mercantile Exchange was formed under another name in 1898 and is claimed to be one of the largest commodity exchanges in the world. Most of the trading is in agricultural commodity contracts for future delivery or "futures." The Chicago Mercantile Exchange provides the only active futures market for eggs in the country. Trading in cash commodities for immediate delivery is done via the spot call blackboards of the exchange.

Membership is limited to 500. The exchange is governed and operated in a manner similar to that of the New York Mercantile Exchange. In July 1968, a membership sold for $37,500.

The cash or spot trading in eggs is from Monday through Friday, 9:30 a.m. to 10:00 a.m. Bids, offers, and sales given verbally are recorded on a blackboard by an employee of the exchange. The minimum trading lot is 100 cases, and four classes are traded.

Classes of Eggs

The New York Mercantile Exchange cash egg market has proliferated into a large number of classes with respect to size and color. As indicated in tables 4 and 5, there are two qualities of large white and brown eggs and two of medium white eggs. The New York private market reporter discontinued quotations for the fancy large white and brown and the No. 1 medium white following protests by producer groups in May 1968. It was claimed that the second lower quality classes of these sizes were not essential to effective pricing and that they were frequently being used by traders to disrupt normal relationships between the two qualities of the same size. These producer groups asked exchange officials to discontinue these classes. This request was not granted, but shortly thereafter the private market reporter stopped issuing quotations on these classes.

At the Chicago Mercantile Exchange, four classes are now traded: large white, medium white, standards, and checks. Quotations are issued on these four classes. Boston quotations are issued for white eggs and brown eggs in jumbo, extra large, large, medium, and pullet sizes. Los Angeles prices are given for AA and A white eggs in the extra large, large, medium, and small sizes. At San Francisco quotations are issued for AA extra large, large, medium, and small, and A extra large and large.

Standards of Quality and Size

Standards of quality for the top quality large eggs at the Mercantile Exchanges in New York and Chicago are below the quality of eggs received at packing stations. A recent ERS survey showed that eggs delivered to packing plants across the country averaged over 92 percent Grade A or better, less than 2 percent B's and C's, 4 percent checks and cracks, and only 0.5 percent discards. The specification for U.S. Consumer Grade A eggs at destination is a minimum of 80 percent A's or better. Within the maximum tolerance of 20 percent which may be below A quality, not more than 5 percent may be C's or checks in any combination, and not over 0.5 percent leaks or dirties. The best grade of eggs traded on the New York Mercantile Exchange requires a minimum of 10 percent AA and 75 percent A. Within the maximum tolerance of 15 percent which may be below A quality, not over 7 percent may be C's dirties and checks in any combination, and not over 3 percent loss. The Chicago Exchange top quality specifications call for a minimum of 80 percent A's. Within the maximum tolerance of 20 percent which may be below A quality, not over 6 percent may be C's dirties or checks in any combination, including not more than 1 percent loss. While it is possible to make translations from one set of standards to another, this could be avoided with an exact alignment of the various standards. Some of the standards for other classes are as high, but none are higher than these mentioned above. The two exchanges have become somewhat more responsive to producer organization requests than formerly, even though requests for improvement of standards have not been fully approved.

At the request of producer organizations, standards at New York were upgraded in May 1967. Following another request by producers, standards were again upgraded May 6, 1968. The Chicago standards were changed at the request of producer organizations April 15, 1968.

There are no specific standards given for the eggs quoted in Boston. They are assumed to be typical for the quality of eggs moving at the trading level for which the quotation is issued.

The standards for the eggs for which prices are given in Los Angeles and San Francisco are the accepted California AA and A standards.

Most individual eggs in the top quality class at New York must weigh 24 ounces per dozen, while at Chicago the minimum weight for most individual eggs is 23 ounces per dozen. The mercantile exchange trading classes at New York and Chicago do not fully reflect the changes in sizes of eggs produced and the emphasis on larger sizes by retailers. In other words, there is no trading in the extra large class of eggs, although it is generally agreed by breeders, and

statistics from random sample tests indicate, that the average size of eggs is increasing. This is a response to breeding, better management and feeding, and more recently, to the increased recycling of old hens. The recent results of the Missouri Poultry Experiment Station random sample tests for 360 days of lay indicate that 43 percent of the total eggs produced were large, 40 percent were extra large or larger, and only 14 percent were medium. In another test where hens were kept an additional 60 days for a total of 420 days of lay, the total production was 35 percent large and 54 percent extra large or larger. An extra large quotation is issued by the private market reporter in New York, but this quotation does not have the background of a trading base on the mercantile exchanges. In Boston, Los Angeles, and San Francisco, an extra large quotation is included.

Kinds of Eggs Traded

Fancy white mediums accounted for 28 percent of all eggs traded at the New York Mercantile Exchange in 1967. Extra fancy large accounted for 27 percent and pullet whites for 21 percent (table 4). In 1968, extra fancy large comprised 37 percent, pullet whites 27 percent, and fancy white mediums 21 percent (table 5).

In 1967-68, white eggs comprised 89-91 percent of the total volume, the five classes of brown eggs 4 percent, and the three classes of mixed eggs 5 to 7 percent. The fancy medium white and the small white classes have shown a steady increase in volume in recent years, in direct contrast to the changing production flow. In 1963, fancy medium white eggs were 16 percent of the volume, and small whites 5 percent. The trading in large eggs declined from 1963 until 1967, when there was a sharp increase. The low volume of trading in standards, checks, and peewees has been relatively steady during the past 5 years.

At Chicago, lower quality eggs such as standards and checks have accounted for much of the decline in sales volume. Trade in these eggs declined by more than 90 percent over the past 10 years. The volume of large mixed eggs also decreased by more than 75 percent, while the volume of large white eggs traded increased by more than 25 percent. In 1967, large white volume was greater than in 1965 and 1966 combined. Practically all of the 1967 increase took place in the last 2 months of the year. The 1967 volume of trading in large white eggs and medium eggs was not sustained in 1968. In 1967, large white eggs accounted for 74 percent of the volume, and the mediums 20 percent of the volume (table 6). In 1968, large white eggs accounted for 86 percent of the reduced volume and mediums for 8 percent (table 7).

Types of Firms Trading on Exchanges

Almost without exception, the firms directly represented in active trading in 1967 at the New York Mercantile Exchange were large independent wholesale receivers. Most of these firms are located in a small, highly congested area on the Lower West Side of Manhattan Island adjacent to the wholesale produce market, and within a few blocks of the mercantile exchange building. Such

wholesalers, previously very important in egg marketing channels, are declining in numbers and in volume of eggs handled. Increasingly, quantity users and retailers handling large volumes are procuring their eggs directly from producers or from packers and assembler-distributors in the production areas.

Independent wholesalers purchase or receive loose eggs on consignment from producers or assemblers. Their outlets are to jobbers who sell primarily to small users and carton for food stores, larger mass feeding institutions such as restaurants, hospitals, hotels and ships, local breakers, and fill-in orders to chain stores and other users. Most eggs are sold as received. The principal quality indicator is the producer or shipper label, as the wholesalers know from experience which eggs will generally be within an acceptable quality range.

These dealers usually move most of their eggs through door trade, since they generally do not own trucks or transportation equipment. Transport facilities are available for rental when needed for specific deliveries, however. Few dealers have cartoning equipment and most have little floor space. Some act as procurement agents for chain stores, but these eggs are cartoned in the area of production and delivered directly to the retailers. One of the wholesalers is a cooperative representing several egg producer cooperatives.

Egg wholesalers are usually represented at the Mercantile Exchange by their owner or senior member. Many of the same individuals have been trading in the cash market at the Mercantile Exchange for many years. Several firms have been in the wholesale business at their present location for decades and at least one company for more than a century.

Interviews with some wholesalers indicate that their sources of market information have been relatively unchanged for many years. Most of their market information is obtained by telephone. The main basis for trading decisions is the supply and demand situation faced by their firm each day. Normal procedure is to survey usual outlets for the firm in the New York area to determine how the demand has changed from the previous day. Suppliers are contacted to determine what eggs are being shipped to the wholesaler and the general supply situation in the areas from which the wholesalers normally procure eggs. This information is secured prior to the opening of the trading at the Mercantile Exchange at 10:30 a.m. each day. This explains why any unusual activity relating to receipt or sale of eggs in the New York area would greatly affect the offerings and bids on the exchange. For example, a strike of truckers who normally haul eggs to a large chain in New York had a sharp impact on egg prices. A crippling fire at a relatively large egg breaker in the New York area immediately affected the price of eggs on the Mercantile Exchange. While there are exceptions, day-to-day trading decisions on the New York Mercantile Exchange trading floor are largely based on the local New York situation.

The effect of the declining wholesale egg market is even more apparent in the composition of the firms actively trading at the Chicago cash egg market. In the past, representation was heavily wholesaler oriented. Many of these wholesalers also had an interest in the futures for eggs and other commodities at the Chicago Mercantile Exchange. As the wholesale egg business declined, these wholesalers increasingly redirected their activities to brokerage operations in the commodity futures market. Of the 15 member firms represented in

trading at the Chicago Mercantile Exchange in 1967, only five could be classified as wholesalers, distributors, or breakers. Some of the five handle a small volume. The remainder are brokerage firms only, and some of these five are also involved in commodity futures brokerage. Brokerage firms can participate in cash egg trading as they apparently have arrangements with egg handlers in Chicago to supply eggs if a sale is made on the exchange or to handle eggs purchased.

Retailers are not directly represented by exchange membership on either the New York or Chicago Mercantile Exchanges. It is also generally acknowledged that retailers do not operate directly through brokers.

As previously described, the trading bases for the quotations in Boston and the prices reported at Los Angeles and San Francisco are the actual transactions by participants who are buying and selling eggs in connection with their normal business operations.

Volume of Trading

The volume of eggs traded on the New York Mercantile Exchange in 1968 totaled 83,485 cases. The volume has fluctuated rather sharply from year to year (table 2), but has trended slightly upward since 1953. The number of transactions at New York in recent years ranged from a low of 1,143 in 1965 to a high of 1,839 in 1964. There were 1,377 transactions or lots traded in 1967. In 1967, the average lot was about 62 cases. The volume has been approximately 0.04 percent of the total U.S. production each year since 1952.

The volume of trading on the spot call at the Chicago Mercantile Exchange has declined over the last decade (table 3). Trading in 1968 was 9,950 cases, down sharply from 25,370 cases traded in 1967. There have been large fluctuations in volume from year to year. The volume traded in 1965-67 was only slightly more than half the volume traded during 1955-57. There were 217 lots traded in 1967 and 131 in 1966. The average volume per trade was 117 cases in 1967.

Degree of Market Concentration of Buyers and Sellers

The number of buyers and sellers and the relative amounts traded by each indicate concentration of power in a market. The number of traders in both Chicago and New York is low, considering the importance of these two markets in establishing the values for eggs in the egg pricing system. In 1967 at New York, there were 18 buyers, 23 sellers, and 25 traders. The total of 25 traders may have included several members of one firm and members trading only for another member (table 8).

There has been a steady decline in the number participating in the spot call in New York. There were 34 buyers and 34 sellers in 1963. Specific information on the number of traders at New York for all of the last decade is not available. However, in November 1955, the names of 45 different individuals appeared on the egg spot call board of the exchange one or more times, an average of 13 a day (13, p. 13).

At Chicago there were 10 buyers and 11 sellers in 1967--a total of 14 firms trading. In 1968, there were six buyers and nine sellers, or a total of only 10 firms. There has been a slight decline since 1963 in the number of buyers and the number of trading firms, while the number of sellers has been relatively constant. In 1955-57, about 50 percent more firms participated in trading.

As the number of participants in exchange trading declines, the bulk of the trading is done by fewer people. At New York in 1967, 66 percent of the eggs were purchased by the three largest buyers, and 71 percent were sold by the three largest sellers. Practically all the trading was done by the seven largest buyers who bought 88 percent, and the seven largest sellers who sold 86 percent of the eggs (table 9). Fifty-two percent (13) of the traders accounted for 94 percent of the trading.

In 1967 at Chicago, the three largest buyers bought 89 percent, and the three largest sellers sold 61 percent of the eggs. The seven largest buyers handled 98 percent of all eggs sold on the exchange; the seven largest sellers accounted for 97 percent of the eggs. Fifty percent, or seven, of the firms did 93 percent of the trading.

There are even fewer traders and more trader concentration within any specific class of eggs. The top quality large white egg class is generally the market leader in establishing egg price quotations. Private reporters usually will not change the quotation on the top quality large white class if there has been no trading activity in the form of sales, bids, or offers. But they will frequently change the quotations for other classes of eggs with no trading activity if there is a change in the quotation for the top quality large white class.

There are even fewer decisionmakers involved in the buying and selling of the top quality of large white eggs at the two mercantile exchanges. At New York in 1966, only nine of the 21 buying firms bought eggs of this top quality class and only 11 of the 21 selling firms participated in selling. The three largest bought 95 percent of these eggs in 1966, and the seven largest bought 99 percent. For the sellers, the three largest sold 78 percent and the seven largest 96 percent. Only 13 of the 24 firms were involved in trading in this class (tables 8, 10, and 11).

In Chicago in 1967, the three largest firms bought 92 percent of the eggs and the seven largest 99 percent of the top quality large white eggs. On the selling side, the three largest sold 64 percent and the seven largest 96 percent. There were eight buyers and 11 sellers involving 15 firms in this class.

Brokerage Activity

Trading on the New York Mercantile Exchange, when performed by members for other members or for nonmembers, is called brokerage sales or purchases. This type of activity is only a small part of total trading.

In 1966, brokerage sales amounted to 4,450 cases or 5.7 percent of the sales volume and 7.6 percent of the purchased volume (4, p. 10). The 1963

brokerage trading was 3.9 percent of the sales and 5.1 percent of the purchases. The volume that was bought and sold on a brokerage basis is cited because frequently the statement is made that although a few members do the majority of the trading, they represent many others on a brokerage basis.

Problems Arising from Thinness in Cash Market Trading

Economics teaches, and history verifies, that if a firm or group of firms grows large in relation to a market, it may attempt to increase its influence over the livelihood of others and turn the terms of trade in its favor. Price relationships which might normally be expected can thus be disrupted.

Various studies have referred to the thinness of trading both in numbers and volume on the cash egg market. With regard to New York, a report of the National Commission on Food Marketing (21, p. 36) states: "Only a few buyers and sellers use this market; only a small volume of eggs changes hands.... Formula pricing further reduces the fraction of total supply which enters into market price formation. As a consequence, market mechanisms which generate prices used in formulas are placed under an increasingly important burden. They become more and more sensitive to erratic influences unrepresentative of equilibrium supply and demand conditions. They become easier to manipulate."

Another National Commission on Food Marketing study (22, p. 56) states: "Egg prices throughout the United States east of the Rocky Mountains have been commonly tied by formula to Urner Barry quotations from the New York Mercantile Exchange spot call. Only a few buyers and sellers of eggs have used this market; only a very small volume of eggs has changed hands. Producer dissatisfaction with pricing on this market resulted in 1953 in the formation of an egg marketing cooperative, mainly to buy eggs on the market. The manager of this cooperative has been the largest buyer on the market. There have been a few dominant sellers. Questions about effective functioning of pricing processes for eggs are becoming increasingly important."

A technical paper prepared for the National Advisory Commission on Food and Fiber (20, p. 99) says: "A more alarming aspect of the deterioration of the price system is the growing practice known as 'trading on someone else's price.' In it, products are delivered without negotiation of a dollars and cents price. The practice is for payment to be made later on the basis of a published price quotation, sometimes with a premium or discount.... In eggs the vast majority of selling is on a quoted price.... There are two serious weaknesses to these practices. First, as the actual negotiation becomes small, it can also become unrepresentative; and it can invite manipulation. Second, when only small quantities of uncommitted supplies enter into pricing, a given price level will often persist too long, and over-adjust when the delayed change takes place. Price movements can be erratic. It is a notably imperfect pricing mechanism."

Any of the many egg industry discussions relating to dissatisfaction with the spot call for eggs at the mercantile exchanges is usually accompanied by the charge that prices on the spot calls at times are manipulated. Those so charging are of the opinion that opposing interests in the market have caused

price behavior unwarranted by basic supply and demand conditions. This is to be expected in a market on which trading is engaged in primarily to influence prices and not to obtain or market supplies of eggs. Buying to cause a price advance may be considered warranted by the buyer but may well be considered unwarranted, and hence manipulative by the selling interests. Similarly, the reverse is true. A buyer, or a seller, acting on an exchange spot call to influence prices may so act with the intent to cause a price change he considers warranted. He may be wrong. When eggs are traded on an exchange primarily to influence prices, the buyers or bidders usually represent producers' interests and those trying to raise prices, while the sellers or offerers represent the buyers of eggs interested in buying as low as possible. It is only to be expected that the evaluation of the basic supply and demand factors by the two opposing interests will differ. Accordingly, it is apparent that interests trading on the exchange spot calls will not be motivated solely by their evaluation of supply and demand factors. They will act to influence prices to their own advantage.

The Commodity Exchange Authority has found it necessary to issue complaints charging manipulation of egg prices on the New York Mercantile Exchange spot call. One charge was that individuals intentionally raised the price of fancy heavyweight mixed eggs to an artificial level by buying eggs, and that such eggs were later sold at a loss by individuals involved in the purchase (35). The purpose of raising the price on spot call was alleged to be to secure a more favorable price for a quantity of eggs sold at prices based upon the New York quotation for fancy heavyweight mixed eggs on the day of delivery to the purchaser. The finding was that price manipulation had occurred, and trading privileges were refused the respondents for a period of time.

Numerous articles have appeared in the trade press in the past 2 years concerning weaknesses in trading practices, alleged attempts to manipulate prices, and efforts by new producer organizations to expand trading volume to enhance their bargaining position (5, 10, 16, 26, 27). Most of these matters are related to the thinness of cash market trading in eggs at such major markets as New York and Chicago. While many of these complaints, including all of those alleging manipulation, remain unproven and undocumented, they are indicative of widespread dissatisfaction with current methods. Thinness in trading, which can also often result in excessive price fluctuations, is discussed in the following section.

Price Fluctuations

Mercantile exchange trading in New York and Chicago, which is the basis for the quotation originating from each city, is frequently criticized for excessive price fluctuations both in frequency and in the amount of change.

In 1967, on the New York Mercantile Exchange, there was no change in quotation for the top quality large white class on 116 days, or 47 percent of the 248 trading days. The price moved up on 70 days and down on 62 days, a total of 132 price changes (table 15). The quotation remained unchanged for one period of 10 days and two periods of 5 days each. There was one period of 8 successive days of price decline, January 17-26, 1967, from 40.5 cents to

31 cents, or down 9.5 cents. This was followed a short time later by a price rise of 5 consecutive days, February 2-8, 1967, from 30.5 cents to 35 cents, a 4.5 cent increase. From June 29 to July 11, 1967, the inside quotation went from 23.5 cents to 34 cents in 6 consecutive trading days. After a day of no change, the price went up another 1.5 cents, making a total change of 12 cents in 8 trading days.

With less seasonality in egg production, it might be expected that there would have been less price fluctuation in 1967 than 1954. But there were about the same number of price movements in 1967 as in 1954 (13, p. 6). The average duration of a price movement was 2 days in both years (tables 14 and 15).

Table 18 analyzes the Chicago quotation for large white eggs in 1967. The Chicago quotation, with only 112 days of price change, showed slightly greater stability than that for New York. The average duration of periods of no price change at Chicago was 2.5 days, slightly longer than the 2.1 days at New York. The average duration of the up or down price movements was practically the same as at New York. At Chicago, there was one period of 6 successive days of price increase and one of 6 successive days of price decrease. There were also two periods of 5 successive days of price decline.

The Boston large white quotation did not change as frequently as those at New York and Chicago (table 20). There was a price change on only 72 of the trading days in 1967. The periods of no price change were longer, averaging 3.8 days. The periods of successive days of price change were decidedly shorter. Most periods of price change were about 1 day in length.

Large brown eggs are also quoted at Boston, and an analysis of 1967 price movements is given in table 22. During that time, there were periods of 12, 15, and 22 days when no price change occurred. The average duration of the periods of no price change was 4.7 days. The three longest periods of price rise lasted 4 days each. This is an indication of a more positive type of price movement as the necessary price change was usually made in 1 or 2 days.

In Northern California and the Pacific Northwest, the low price of the range for Grade AA large white eggs, cartoned and delivered to retailers in San Francisco, as reported by USDA Market News, is used as the base to arrive at the price of eggs in trade channels. An analysis of 1967 price movements for this class of eggs is shown in table 24. The analysis indicates greater stability of price than at the other cities. There were price changes on only 30 days, 15 movements up and 15 down. The periods of successive days of no price change were longer, there being one period of 23 market days. The average duration of periods of no price change was 7.7 days. All periods of price change were of 1 day's duration.

In the Los Angeles area, the inside or low of the price range for Grade AA large white eggs, cartoned, delivered to retailers has been the same as the outside or top price of the range for Grade A large white cartoned eggs, delivered to retailers. In the past, producers were paid a fixed differential from the Grade A large price. However, the Grade A price report was discontinued by Market News in June 1968. Therefore, the price for inside Grade AA large white cartoned eggs, delivered to retailer, was analyzed for movements.

During 1967, there were 16 price changes. Seven of them were up and nine were down. All were of one day's duration (table 26). The average period of no change was 13.9 days or almost 3 trading weeks. There was only one period of 1 day in length of no price change, one of 3 days, and four of 4 days. All other periods of no price change ranged from 8 to 36 days.

There were no complaints about successive base price fluctuations in the Los Angeles area, and few in the San Francisco area. Yet, these prices cleared the market and kept the proper supply-demand relationship. Since California produces a surplus of eggs, there is validity to the argument that some of the more frequent California price changes, such as those occurring after short periods (1 to 4 days) of no change, were due to the effects of price changes in New York.

There is an inverse relationship between the average duration of price change movement and the average amount of price change (table 28). In 1967, the average duration of price changes in New York for the top quality large white quotation was 1.9 days. The average value of the price change was 0.9 cents. Sixty percent, or 76 of the 132 changes, were less than 1 cent. There were 41 changes, or about 30 percent, of 1 cent each. At Chicago, the changes were of slightly shorter duration and averaged 1 cent. Fifty-two of the 112 changes were of less than 1 cent.

At the other extreme, the changes in both Los Angeles and San Francisco were of only 1 day's duration, and averaged 2 cents for each change. None of the changes was less than 1 cent per dozen.

The single largest daily price change noted in 1967 was at Boston for the large whites, a 6.5 cents' change. The largest price change for brown eggs at Boston was 6 cents. The largest change for 1 day at Chicago was 5 cents. At New York, Los Angeles and San Francisco, the greatest 1 day change was 4 cents.

At Chicago, the large white class had price changes on 45 percent of the trading days, all as a result of a bid, sale, or offer. With the other classes, 27 to 81 percent of the price changes were on days when there was no trading activity for that particular class. Thirty percent of all price quotation changes in 1967 at Chicago were without the background of trading in the class on the day of the change.

In New York, the top quality white quotation changed on 53 percent of the trading days in 1967, but only on 4 of the days when there were no sales, bids, or offers in the class. The fancy medium white class and the pullet white class had eight and 11 changes respectively, without benefit of trading in those classes.

New York brown egg quotations were often changed with no trading activity. Top quality brown eggs at New York changed price on 90 days in 1967. Forty percent of these price changes were made without bids, offers, or sales in the class on the particular day. On other brown egg classes, price changes without trading accounted for up to 96 percent of the total number of changes. The brown peewee class had price changes on 52 days, and 50 of these changes were when there was no trading in that class.

When there was a change in quotation for the leading class, the New York and Chicago market reporters apparently made adjustments in quotations for the classes in which there was no trading. This was done to maintain acceptable relationships among the various classes of eggs. Price changes made by private market reporters in New York and Chicago for classes with no trading activity underlie the statement by some members of the egg industry that establishment of price quotations is to a degree the decision of one individual at each location.

Similar analyses cannot be made for Boston, San Francisco, or Los Angeles, since the volume of trading in the various classes is not available. However, price changes in these markets reflect actual sales rather than arbitrary adjustments to preserve acceptable relationships between classes.

APPENDIX C

Table 2.--Volume of eggs traded, New York Mercantile Exchange, 1947-68

Year	Cases	Year	Cases
	Number		Number
1947	21,073	1958	70,321
1948	21,280	1959	74,427
1949	36,943	1960	51,469
1950	31,162	1961	63,759
1951	36,428	1962	77,438
1952	44,636	1963	85,935
1953	58,978	1964	88,070
1954	83,328	1965	63,918
1955	57,246	1966	77,867
1956	87,336	1967	86,168
1957	82,464	1968	83,485

Table 3.--Volume of eggs traded, Chicago Mercantile Exchange, selected years

Year	Cases	Year	Cases
	Number		Number
1953	28,770	1964	21,835
1954	20,881	1965	16,430
1955	32,287	1966	13,900
1956	60,225	1967	25,370
1957	18,392	1968	9,950
1963	19,250		

Table 4.--Volume of eggs traded, by class, New York Mercantile Exchange, 1967

Class	Cases	Share of total trading
	Number	Percent
White:		
Extra fancy large	23,585	27.4
Fancy large	8,851	10.3
Fancy medium	24,567	28.5
No. 1 medium	1,350	1.6
Pullet	17,901	20.8
Peewee	425	.5
Brown:		
Extra fancy large	850	1.0
Fancy large	---	---
Fancy medium	1,467	1.7
Pullet	1,388	1.6
Peewee	50	.1
Mixed:		
Fancy heavyweight 1/	1,550	1.8
Standard	1,000	1.2
Check	3,175	3.7

1/ Discountinuance of quotation in March 1967 apparently eliminated trading in this class as there were no sales afterward.

Table 5.--Volume of eggs traded, by class, New York Mercantile Exchange, 1968

Class	Cases	Share of total trading
	Number	Percent
White:		
Extra fancy large 1/	31,031	37.2
Fancy large 2/	4,150	5.0
Fancy medium	17,819	21.3
No. 1 medium	450	.5
Pullet	22,875	27.4
Peewee	75	.1
Brown:		
Extra fancy large 1/	1,300	1.6
Fancy large 2/	50	.1
Fancy medium	200	.2
Pullet	1,485	1.8
Peewee	100	.1
Mixed:		
Standard	400	.5
Check	3,550	4.2

1/ Name changed to fancy large in May 1968.
2/ Discontinuance of quotation in May 1968 apparently eliminated trading in this class as there were no sales afterward.

Table 6.--Volume of eggs traded, by class, Chicago Mercantile Exchange, 1967

Class	Cases	Share of total trading
	Number	Percent
White, large	18,870	74.3
Mixed large	1,000	3.9
Mixed medium	5,000	19.7
Standard	100	0.4
Check	400	1.7

Table 7.--Volume of eggs traded, by class, Chicago Mercantile Exchange, 1968

Class	Cases	Share of total trading
	Number	Percent
White, large	8,550	85.9
Mixed large 1/	600	6.0
Mixed medium 2/	800	8.1
Standard	none	---
Check	none	---

1/ Class discontinued in April 1968.
2/ Mixed medium class discountinued in April 1968 and replaced by white medium class. Total is for both classes. Mixed medium volume, Jan. 1, 1968 to time of discontinuance, 400 cases.

Table 8.--Buyers, sellers, and traders of eggs on the New York and Chicago Mercantile Exchanges, 1963-67

Item	1963	1964	1965	1966	1967
	Number	Number	Number	Number	Number
New York: 1/					
Buyers	34	25	24	21	18
Sellers	34	31	28	21	23
Traders	41	35	33	24	25
Chicago: 2/					
Buyers	14	13	10	11	10
Sellers	11	11	8	11	11
Traders	15	13	11	15	14

1/ Number of members may include several members of one firm, or members trading only for another member.
2/ Number of firms.

Table 9.--Importance of major buyers and sellers, by percentage of total eggs traded, New York and Chicago Mercantile Exchanges, 1963, 1967, and 1968

Share of volume by:	New York					
	Buyers			Sellers		
	1963 1/	1967 2/		1963 1/	1967 2/	
	Percent	Percent		Percent	Percent	
Three largest	59	66		48	71	
Five largest	73	78		64	82	
Seven largest	81	88		75	86	
	Chicago					
	Buyers			Sellers		
	1963 1/	1967 1/	1968 1/	1963 1/	1967 1/	1968 1/
	Percent	Percent	Percent	Percent	Percent	Percent
Three largest	62	89	89	75	61	65
Five largest	77	96	98	90	89	83
Seven largest	89	98	3/100	96	97	96

1/ Cases traded.
2/ Lots traded.
3/ Only six buyers.

Table 10.--Firms buying and selling eggs in selected classes, New York and Chicago Mercantile Exchanges, 1966

Class	New York			Chicago		
	Buyers	Sellers	Total	Buyers	Sellers	Total
	Number	Number	Number	Number	Number	Number
Top quality, large white	9	11	13	8	11	15
Top quality, medium 1/	9	17	19	6	8	8

1/ White in New York; mixed color in Chicago.

Table 11.--Importance of major buyers and sellers, top quality large white eggs, by percentage of total eggs traded, New York and Chicago Mercantile Exchanges, 1966-67

Share of volume by:	New York 1/		Chicago 2/	
	Buyers	Sellers	Buyers	Sellers
	Percent	Percent	Percent	Percent
Three largest	95	78	92	64
Five largest	98	93	97	92
Seven largest	99	96	99	96

1/ 1966 data, latest available.
2/ 1967 data.

Table 12.--Price changes by class of eggs, New York and Chicago Mercantile Exchanges, 1967

Market and class	Total price movements			Price change with no sales, bids, or offers	
	Days with price change	Days without price change	Percentage of days with price change	Days	Percentage of total days of change
	Number	Number	Percent	Number	Percent
New York Mercantile Exchange: 1/					
White:					
Extra fancy large	132	116	53	5	4
Fancy large	117	131	47	22	19
Fancy medium	134	114	54	10	8
No. 1 medium	125	123	50	72	58
Pullet	114	134	46	13	11
Peewee	70	178	28	49	70
Brown:					
Extra fancy large	90	158	36	36	40
Fancy large	91	157	37	70	77
Fancy medium	93	151	38	48	52
Pullet	82	166	33	50	61
Peewee	52	196	21	50	96
Mixed:					
Standard	127	121	51	79	61
Check	90	158	36	39	43
Chicago Mercantile Exchange: 2/					
Large white	112	139	45	---	---
Large mixed	112	139	45	44	39
Medium mixed	74	177	29	20	27
Standard	39	212	16	25	64
Check	26	225	10	21	81

1/ 248 trading days.
2/ 251 trading days.

Table 13.--Price changes by class of eggs, New York and Chicago Mercantile Exchanges, 1968

Market and class	Total price movements			Price change with no sales, bids, or offers	
	Days with price change	Days without price change	Percentage of days with price change	Days	Percentage of total days of change
	Number	Number	Percent	Number	Percent
New York Mercantile Exchange: 1/					
White:					
Fancy large	117	132	47	1	1
Fancy medium	131	118	53	12	9
Pullet	131	118	53	14	11
Peewee	57	192	23	42	74
Brown:					
Fancy large	78	171	31	23	29
Fancy medium	96	153	39	55	57
Pullet	102	147	41	58	57
Peewee	52	197	21	49	94
Mixed:					
Standard	101	148	41	68	67
Check	64	185	26	23	36
Chicago Mercantile Exchange: 1/					
Large white	114	135	46	1	1
Medium white 2/	102	147	41	15	15
Standard	46	203	18	31	67
Check	26	203	10	24	92

1/ 249 trading days.
2/ Changed from medium mixed, April 1968.

Table 14.--Price movements, nearby extra fancy heavyweight eggs, price quotations, New York, 1954

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change	25	11	5	6	3	2	2.2	116
Up	22	8	1	3	0	3	2.0	73
Down	19	10	3	1	0	1	1.7	59
Total	66	29	9	10	3	6	2.0	248

Source: Reference (13), p. 6.

Table 15.--Price movements, extra fancy large heavy white eggs, price quotations, New York, 1967

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change	25	13	11	3	2	1/1	2.1	116
Up	23	6	6	---	1	2/2	1.8	70
Down	18	7	4	1	---	3/3	1.9	62
Total	66	26	21	4	3	6	2.0	248

1/ One of 10 days.
2/ Two of 6 days.
3/ Includes 1 of 6 days and 1 of 8.

Table 16.--Price movements, fancy large white eggs, price quotations, New York, 1968

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change	12	8	9	5	5	1/4	3.1	132
Up	13	8	3	2	---	2/5	2.7	82
Down	10	4	---	1	1	3/1	2.1	35
Total	35	20	12	8	6	10	2.7	249

1/ One of 6 days, 1 of 7, 1 of 8, and 1 of 11.
2/ Two of 6 days and 3 of 8.
3/ One of 8 days.

Table 17.--Price movements, fancy large brown eggs, price quotations, New York, 1968

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change	14	3	4	8	---	1/10	4.1	170
Up	16	9	2	1	2	---	1.8	54
Down	13	3	---	---	---	2/ 1	1.5	25
Total	43	15	6	9	2	11	2.9	249

1/ Three of 6 days, 1 of 8, 1 of 9, 1 of 10, 1 of 12, 1 of 13, 1 of 16, and 1 of 20.
2/ One of 6 days.

Table 18.--Price movements, extra large white eggs, price quotations, Chicago, 1967

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change...	19	18	8	5	1	1/ 4	2.5	139
Up.....	18	7	5	1	---	2/ 1	1.8	57
Down.....	17	5	4	---	2	3/ 1	1.9	55
Total.....	54	20	17	6	3	6	2.4	251

1/ Includes 2 of 7 days, 1 of 9, and 1 of 10.
2/ One of 6 days.
3/ One of 6 days.

Table 19.--Price movements, extra fancy large white eggs, price quotations, Chicago, 1968

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change...	25	10	7	2	3	1/ 6	2.6	135
Up.....	22	7	2	3	1	2/ 1	1.8	65
Down.....	15	9	1	2	1	---	1.8	49
Total.....	62	26	10	7	5	7	2.1	249

1/ Two of 6 days, 3 of 8, and 1 of 10.
2/ One of 6 days.

Table 20.--Price movements, large white eggs, price quotations, Boston, 1967

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change...	15	5	5	4	7	1/11	3.8	179
Up.....	17	8	2	1	---	---	1.7	43
Down.....	17	3	---	---	---	2/ 1	1.4	29
Total.....	49	16	7	5	7	12	2.6	251

1/ Includes 5 of 6 days, 1 of 7, 2 of 8, 2 of 11, and 1 of 13.
2/ One of 6 days.

Table 21.--Price movements, large white eggs, price quotations, Boston, 1968

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	24	10	3	2	3	1/10	3.2	166
Up.....	24	7	4	2	---	---	1.6	58
Down.....	10	4	---	1	1	---	1.7	27
Total....	58	21	7	5	4	10	2.4	251

1/ Three of 6 days, 3 of 7, 1 of 10, 1 of 11, 1 of 13, and 1 of 17.

Table 22.--Price movements, large brown eggs, price quotations, Boston, 1967

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	11	4	2	6	1	1/14	4.7	180
Up.....	6	7	2	3	---	---	2.1	38
Down.....	14	5	1	---	---	2/ 1	1.6	33
Total....	31	16	5	9	1	15	3.3	251

1/ Includes 5 of 6 days, 3 of 7, 1 of 8, 2 of 9, 1 of 12, 1 of 15 and 1 of 22.
2/ One of 6 days.

Table 23.--Price movements, large brown eggs, price quotations, Boston, 1968

Price movement	Successive days of similar movements						Average	Total days of movement
	1	2	3	4	5	6 or more		
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	9	13	6	5	4	1/ 7	4.0	175
Up.....	18	6	3	1	1	---	1.7	48
Down.....	20	2	---	1	---	---	1.2	28
Total....	47	21	9	7	5	7	2.6	251

1/ Two of 6 days, 1 of 8, 2 of 10, and 2 of 21.

Table 24.--Price movements, low of price range, Grade AA, large white eggs, cartoned, delivered to retailers, San Francisco, 1967

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	3	2	4	2	1	1/17	7.7	222
Up.....	15	---	---	---	---	---	.1	15
Down.....	15	---	---	---	---	---	.1	15
Total....	35	2	4	2	1	17	4.3	252

1/ Includes 2 of 6 days, 2 of 7, 1 of 8, 2 of 9, 1 of 10, 2 of 11, 3 of 13, 1 of 14, 2 of 15, and 1 of 23.

Table 25.--Price movements, low of price range, Grade AA, large white eggs, cartoned, delivered to retailers, San Fransisco, 1968

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	1	1	3	9	---	1/15	7.48	217
Up.....	19	---	---	---	---	---	1.00	19
Down.....	10	---	1	---	---	---	1.18	13
Total....	30	1	4	9	---	15	4.22	249

1/ Includes 2 of 6 days, 2 of 7, 3 of 8, 1 of 9, 1 of 11, 1 of 13, 1 of 15, 2 of 16, 1 of 18, and 1 of 21.

Table 26.--Price movements, low of price range, Grade AA, large white eggs, cartoned, delivered to retailers, Los Angeles, 1967

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	1	---	1	4	---	1/11	13.9	236
Up.....	7	---	---	---	---	---	.1	7
Down.....	9	---	---	---	---	---	.1	9
Total....	17	---	1	4	---	11	7.6	252

1/ One of 8 days, 3 of 9, 1 of 10, 1 of 14, 2 of 27, 1 of 33, 1 of 34, and 1 of 36.

Table 27.--Price movements, low of price range, Grade AA, large white eggs, cartoned, delivered to retailers, Los Angeles, 1968

Price movement	Successive days of similar movements							Total days of movement
	1	2	3	4	5	6 or more	Average	
	Number	Number	Number	Number	Number	Number	Number	Number
No change..	---	2	3	8	---	1/15	7.89	221
Up.....	17	---	---	---	---	---	1.00	17
Down.....	11	---	---	---	---	---	1.00	11
Total....	28	2	3	8	---	15	4.45	249

1/ Includes 2 of 7, 2 of 8, 6 of 9, 1 of 13, 1 of 14, 1 of 15, 1 of 16, and 1 of 34.

Table 28.--Fluctuation of base quotations and prices, selected markets and classes of eggs, 1967

Item	Days of price movement of--						Average change	
	Less than 1 cent per dozen	1-1.99 cents per dozen	2-2.99 cents per dozen	3-3.99 cents per dozen	4 cents or more per dozen	Total days of change	Days without change	Days	Price per dozen
	Number	Number	Number	Number	Number	Number	Number	Number	Cents
New York quotation:									
Top large white...	76	41	13	1	1	132	116	1.9	0.9
Chicago quotation:									
Top large white...	52	47	10	2	1	112	139	1.8	1.0
Boston quotation:									
Top large white...	5	39	18	6	3	72	179	1.6	1.6
Boston quotation:									
Top large brown...	4	37	21	7	3	71	180	1.8	1.6
Los Angeles:									
Low Grade AA large white.....	---	4	7	4	1	16	236	1.0	2.1
San Francisco:									
Low Grade AA large white.....	---	6	20	2	2	30	203	1.0	2.0

Table 29.--Fluctuation of base quotations and prices, selected markets and classes of eggs, 1968

Item	Days of price movement of--					Total days of change	Days without change	Average change	
	Less than 1 cent per dozen	1-1.99 cents per dozen	2-2.99 cents per dozen	3-3.99 cents per dozen	4 cents or more per dozen			Days	Price per dozen
	Number	Number	Number	Number	Number	Number	Number	Number	Cents
New York quotation: Top large white	48	55	10	3	1	117	132	2.4	1.1
Chicago quotation: Top large white	28	52	25	8	1	114	135	1.8	1.4
Boston quotation: Top large white	2	60	18	3	2	85	166	1.6	1.4
Boston quotation: Top large brown	15	38	15	6	2	76	175	1.5	1.4
Los Angeles: Low Grade AA large white	1	4	12	5	6	28	221	1.0	2.5
San Francisco: Low Grade AA large white	1	6	21	2	2	32	217	1.1	2.0

Table 30.--Current standards for top quality eggs traded on mercantile exchanges

Market and class	Allowable standards of quality				
	Grade AA	Grade A	Grade B	Grade C Dirts checks	Loss
New York: 1/ Fancy, large	Minimum of 10 percent	Minimum of 75 percent	Balance	Maximum of 7 percent	Maximum of 3 percent
Chicago: 2/ White, large	---	Minimum of 80 percent	Balance	Maximum of 6 percent	Maximum of 1 percent
				Combined maximum of 6 percent	

1/ Effective May 6, 1968.
2/ Effective April 15, 1968.

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